The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

VOL. 23. NO. 48 TULSA, OKLAHOMA, APRIL 23, 1925

Copyright, 1925, by The Petroleum Publishing Co.

TABLE OF CONTENTS

SPECIAL ARTICLES

Crude Production Shows Big Increase 19
By Andrew M. Rowley
Smackover deep sand responsible for gain as light oil fields decline. Peak output of 1924 exceeded.

Production of Light Oil Again Declines 21
By Andrew M. Rowley
Output of gasoline content crude on which main price is based decreased more than 100,000 bbls. daily in three months.

Sweetening of Natural Gasoline 22
By W. G. Hiatt
Discussion in non-technical manner of methods and practices by Phillips Petroleum Co. in treating process.

Gasoline Makers Optimistic 22
By Neil Williams

President D. E. Buchanan Reviews Record of Association 23

Big Lake Oil Field "Wildcatters Dream" (map) 24
By C. D. Lockwood
Two companies control acreage. Recoverable oil from one horizon estimated at 65,000,000 bbls.

Risk of Exposing Your Hand (editorial) 26

More Stability in California Situation (graph) 28
By Henry J. Bauer
Production of natural gasoline expected to average 710,000 gallons daily in 1925.

Fluid Delivery From Oil and Gas Wells (illustrated) 54
By Stanley C. Herold

Evolution of the Gasoline Tank Car (illustrated) 82

Uniform Cost Method Questionnaire 86
By L. M. Fanning

Value of Public Relations Department 88
By George M. Cook
New profession developed as result of economic changes to maintain contact between business and public.

Wilbarger County, Texas, Map 92

Possibilities in New Mexico and Utah 96
By James McIntyre
One is showing healthy growth as an oil region but other offers not much promise.

Greater Progress in Natural Gasoline 99
By George A. Burrell
Shows sequence of important developments and predicts even more striking advancements.

Gas Compression and Gasoline Extraction as Engineer Sees It 142
By E. W. Jordan

Trade Organization of Great Benefit 163
By J. Edgar Pew

Changes in Pennsylvania Refining (illustrated) 167
By L. D. Fulton and W. S. Zehrung
Modern methods and equipment supplanting former practices. Efficient refrigeration machinery and power plant.

Association of Natural Gasoline Manufacturers 65-80

FIELD OPERATIONS

Late News From the Fields 29

Southwest Texas (illustrated) 30

North Central Texas 32
By George R. Kelley

Oklahoma 34
By J. L. Dwyer

Kansas 36
By J. L. Dwyer

Gulf Coast 38
By P. L. McGreal

California 40
By L. P. Stockman

Mexico 42
By George Blardone

North Louisiana-Arkansas 44
By M. L. Vaughn

East Central Texas 46

Rocky Mountain Area 48
By F. B. Taylor

Canada 48
By Victor Lauriston

Pennsylvania-West Virginia 50
By D. S. Wakenight

Kentucky-Tennessee 51
By Vern T. Whitney

Central West 51
By Whit

REFINING AND MARKETING

Oklahoma Gasoline Advance General 20
By C. O. Willson

Refining and Marketing News 166

Chicago Stocks Low; Record Demand 168
By J. B. Waldo

Eastern Market Remains Firm 169
By N. O. Fanning

Refinery and Crude Prices 170-171

Tank Wagon Quotations 172

Absorption Factor in Plant Efficiency 174
By A. F. Maxson
Nautral gasolines and blends follow in Group 3 but fuel and gas oils show slumping tendency.

ARTICLES OF GENERAL INTEREST

Pittsburgh Steel Freight Rates Lowered to West 29

Men Known in Oildom and Personals 58

Equipment and Supplies 60

Oil Country Goods Output Holds 60
By B. E. V. Luty

Natural Gas Developments 62

Natural Gasoline Statistics in 1923 62

Classified Want Advertisements 160-161-162

Oil Stocks Irregular but Dull 164
By N. O. Fanning

Detailed Operations in Gulf Coast, March 190

Crude Petroleum Statistics 194

BE A REGULAR READER

The OIL and GAS JOURNAL Tulsa, Okla.

You are hereby directed to mail The Oil and Gas Journal to me for.....year. Enclosed find remittance $.....

Classify my interests as checked by me.

.....Producing .....Refining
.....Equipment .....Marketing

Name.....
Address.....
City.....

$6 a Year
$3 6 Month

The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

VOL. 23. NO. 48 TULSA, OKLAHOMA, APRIL 23, 1925

Copyright, 1925, by The Petroleum Publishing Co.

TABLE OF CONTENTS

SPECIAL ARTICLES

Crude Production Shows Big Increase 19
By Andrew M. Rowley
Smackover deep sand responsible for gain as light oil fields decline. Peak output of 1924 exceeded.

Production of Light Oil Again Declines 21
By Andrew M. Rowley
Output of gasoline content crude on which main price is based decreased more than 100,000 bbls. daily in three months.

Sweetening of Natural Gasoline 22
By W. G. Hiatt
Discussion in non-technical manner of methods and practices by Phillips Petroleum Co. in treating process.

Gasoline Makers Optimistic 22
By Neil Williams

President D. E. Buchanan Reviews Record of Association 23

Big Lake Oil Field "Wildcatters Dream" (map) 24
By C. D. Lockwood
Two companies control acreage. Recoverable oil from one horizon estimated at 65,000,000 bbls.

Risk of Exposing Your Hand (editorial) 26

More Stability in California Situation (graph) 28
By Henry J. Bauer
Production of natural gasoline expected to average 710,000 gallons daily in 1925.

Fluid Delivery From Oil and Gas Wells (illustrated) 54
By Stanley C. Herold

Evolution of the Gasoline Tank Car (illustrated) 82

Uniform Cost Method Questionnaire 86
By L. M. Fanning

Value of Public Relations Department 88
By George M. Cook
New profession developed as result of economic changes to maintain contact between business and public.

Wilbarger County, Texas, Map 92

Possibilities in New Mexico and Utah 96
By James McIntyre
One is showing healthy growth as an oil region but other offers not much promise.

Greater Progress in Natural Gasoline 99
By George A. Burrell
Shows sequence of important developments and predicts even more striking advancements.

Gas Compression and Gasoline Extraction as Engineer Sees It 142
By E. W. Jordan

Trade Organization of Great Benefit 163
By J. Edgar Pew

Changes in Pennsylvania Refining (illustrated) 167
By L. D. Fulton and W. S. Zehrung
Modern methods and equipment supplanting former practices. Efficient refrigeration machinery and power plant.

Association of Natural Gasoline Manufacturers 65-80

FIELD OPERATIONS

Late News From the Fields 29

Southwest Texas (illustrated) 30

North Central Texas 32
By George R. Kelley

Oklahoma 34
By J. L. Dwyer

Kansas 36
By J. L. Dwyer

Gulf Coast 38
By P. L. McGreal

California 40
By L. P. Stockman

Mexico 42
By George Blardone

North Louisiana-Arkansas 44
By M. L. Vaughn

East Central Texas 46

Rocky Mountain Area 48
By F. B. Taylor

Canada 48
By Victor Lauriston

Pennsylvania-West Virginia 50
By D. S. Wakenight

Kentucky-Tennessee 51
By Vern T. Whitney

Central West 51
By Whit

REFINING AND MARKETING

Oklahoma Gasoline Advance General 20
By C. O. Willson

Refining and Marketing News 166

Chicago Stocks Low; Record Demand 168
By J. B. Waldo

Eastern Market Remains Firm 169
By N. O. Fanning

Refinery and Crude Prices 170-171

Tank Wagon Quotations 172

Absorption Factor in Plant Efficiency 174
By A. F. Maxson
Nautral gasolines and blends follow in Group 3 but fuel and gas oils show slumping tendency.

ARTICLES OF GENERAL INTEREST

Pittsburgh Steel Freight Rates Lowered to West 29

Men Known in Oildom and Personals 58

Equipment and Supplies 60

Oil Country Goods Output Holds 60
By B. E. V. Luty

Natural Gas Developments 62

Natural Gasoline Statistics in 1923 62

Classified Want Advertisements 160-161-162

Oil Stocks Irregular but Dull 164
By N. O. Fanning

Detailed Operations in Gulf Coast, March 190

Crude Petroleum Statistics 194

BE A REGULAR READER

The OIL and GAS JOURNAL Tulsa, Okla.

You are hereby directed to mail The Oil and Gas Journal to me for.....year. Enclosed find remittance $.....

Classify my interests as checked by me.

.....Producing .....Refining
.....Equipment .....Marketing

Name.....
Address.....
City.....

$6 a Year
$3 6 Month

Crude Production Shows Big Increase

Average daily production in United States week ended April 18, 2,085,425 bbls. Gain from previous week, 74,110 bbls.

Smackover Deep Sand Responsible for Gain as Light Oil Fields Decline. Peak Output of 1924 Exceeded

Highest daily average estimated production this year, week ended April 18, 2,085,425 bbls. Lowest January 3, 1,911,730 bbls.

By Andrew M. Rowley

Production of crude petroleum in the United States last week reached the highest point since in November, 1923, exceeding the peak for 1924 reached in the week ending August 23, by more than 28,000 barrel a day. The increase for the week, 74,110 barrels daily, is one of the largest gains registered in recent years at least.

The recently discovered deep sand area of the Smackover Field, in Arkansas, was responsible for the big increase in production, that area showing a gain of 77,765 barrels daily. Consequently, the other producing sections of the country registered a decline in output for the week.

Ordinarily an increase in crude production averaging 74,110 barrels a day for a week, following a gain of 51,751 barrels a day the previous week, would have a most pronounced effect upon the crude oil price structure. The increase at Smackover, however, was expected and hardly caused a flurry in the general situation. Smackover heavy crude, as has been pointed out before, tests from 21 to 23 gravity and is valuable chiefly as a fuel oil. It can be cracked for gasoline but little of it is being cracked and for all intents and purposes, it is a fuel oil crude and, as such, has but little effect upon the main crude oil price structure which is based on light, or gasoline content, crude.

The production of light gravity crude actually showed a decrease of 4,044 barrels daily last week and the output of this class of crude, which really makes the market, last week averaged more than 100,000 barrels daily less than it did three months ago. These facts are covered more fully in another article on page 21 of this issue.

Indications that Smackover may be nearer its peak than had been thought were in evidence early this week when six wells in the heart of the main area stopped flowing. The wells are all located in Section 3-16-15, which has been the scene of many of the big gushers in the field.

Production for the current week probably will show another substantial increase, also due to the development in the Smackover Field. The output of the new deep sand area was estimated at about 135,000 barrels daily at the beginning of last week and at 185,000 barrels on Sunday of this week. The previous week it had been estimated at 37,000 barrels at the beginning and 135,000 barrels at the close Hence the gain at the end of last week for that week was 50,000 barrels while the previous week it was nearly 100,000 barrels.

The North Texas area is continuing to be a scene of considerable activity with good results being obtained and numerous promising new producing horizons in sight. The Reagan County sector is responsible for much of the new production and for a large part of the gain in output recorded last week. A special article on the Big Lake Field there is published in this issue, starting on page 24.

Lack of water for drilling purposes has held back development work in the new Lockhart Field in Southwest Texas, but this difficulty is expected to be surmounted this week as citizens of Lockhart promise adequate water and the oil companies are laying water lines to the field. New completions in that field are adding to its production and the wells have a good flush output.

California is maintaining its production around 600,000 barrels daily and there is little chance of the output of that State showing any material decline in the near future. The Rosecrans Field is due for considerable development which will increase the output of light oil, which has shown a steady decline as the older fields of the State have been opened up and developed further as a result of the decline in production of the flush fields of the Los Angeles Basin.

While the production of Oklahoma showed a decline during the past week, the period was not without good results. In the Wewoka Field, W. R. Ramsey drilled in a well which started at the rate of 140 barrels an hour. The previous week Mr. Ramsey had deepened another well and made a big producer of it, repeating the performance last week. The well of the Bement Oil Company, in Pawnee County, which had an initial production of 600 barrels before it bridged and stopped flowing, started again to flow, this time at the rate of 40 barrels an hour. This flow decreased and the output last Friday totaled 765 barrels but on Sunday the well only made 15 barrels.

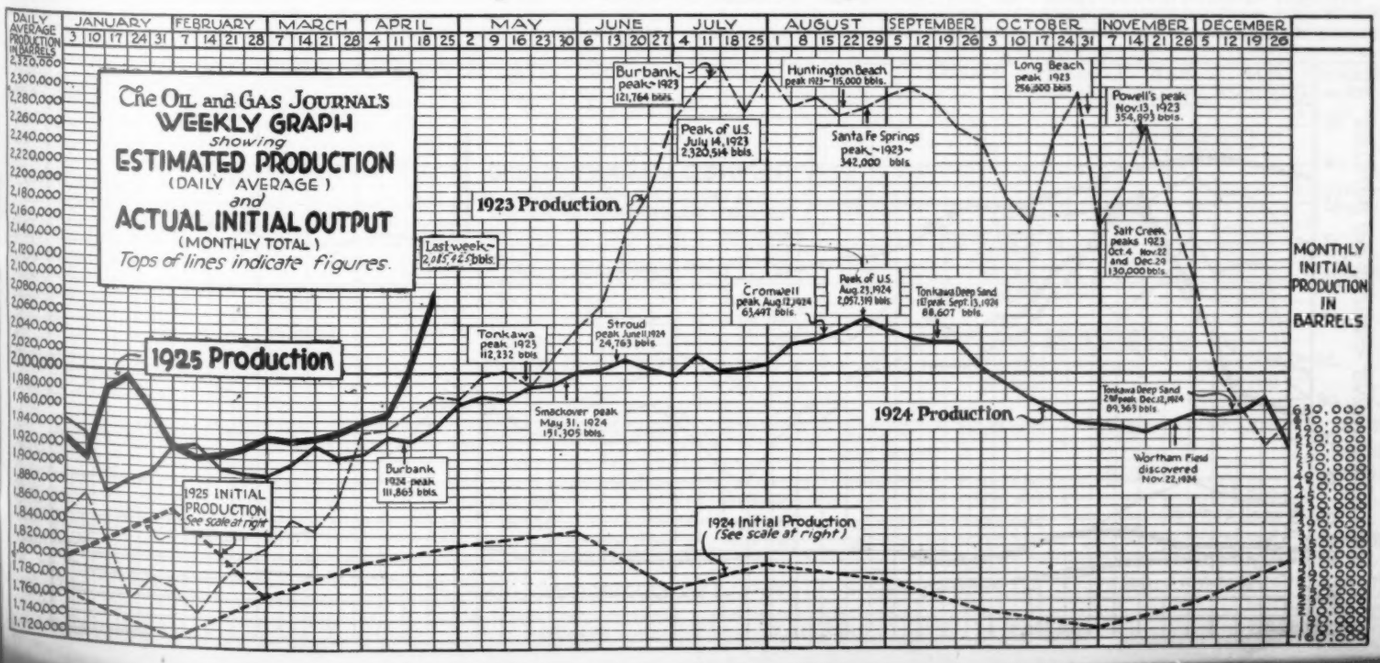
Operators are becoming more interested in the Artesia Field, in New Mexico, and developments in that area are being watched with great interest. It seems probable fairly good production of high gravity oil will be developed in that area.

PRODUCTION IN THE UNITED STATES

Estimated daily average crude oil production in the United States for the week ended April 18, and a comparison with the previous week follows:

	April 18	April 11
Oklahoma—		
Tonkawa	72,255	72,685
Burbank	60,310	60,970
Other Osage Fields	34,245	34,455
Cushing and Shamrock	21,970	22,025
Bristow and Eastern Bristow	33,795	33,865
Cromwell	43,385	44,670
Papoose	26,365	24,875
Northern Miscellaneous	108,215	108,520
Southern Fields	62,890	62,875
Total Oklahoma	463,430	464,940
North Louisiana	51,011	50,360
Arkansas—		
El Dorado and Calion	9,345	9,430
Smackover Light	30,445	31,225
Smackover Heavy	206,560	128,795
Stephens and Nevada	3,500	3,540
Total Arkansas	249,850	172,990
North Central Texas	155,290	147,515
Powell	52,800	53,400
Mexia, Currie, Richland, etc.	29,190	28,720
Wortham	58,700	62,700
Kansas	85,625	85,795
Total Mid-Continent Area	1,145,896	1,066,420
Gulf Coast	103,389	101,840
Southwest Texas	45,950	45,110
Eastern	104,200	103,475
Rocky Mountain Area	90,990	94,470
California—		
Santa Fe Springs	48,000	49,000
Long Beach	114,000	114,000
Huntington Beach	42,000	42,000
Torrance	38,000	39,000
Dominguez	47,000	48,000
Remainder of State	306,000	308,000
Total California	595,000	600,000
Total United States	2,085,425	2,011,315

→ **Increase, 74,110 Barrels** ←


The Oil and Gas Journal's
WEEKLY GRAPH
showing
ESTIMATED PRODUCTION
(DAILY AVERAGE)
and
ACTUAL INITIAL OUTPUT
(MONTHLY TOTAL)
Tops of lines indicate figures.
DAILY AVERAGE PRODUCTION IN BARRELS
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
1923 Production
1924 Production
1925 Production
1925 INITIAL PRODUCTION See scale at right
1924 Initial Production (See scale at right)
Burbank peak 1923 121,764 bbls.
Peak of U.S. July 14, 1923 2,320,514 bbls.
Huntington Beach peak 1923 115,000 bbls.
Santa Fe Springs peak 1923 342,000 bbls.
Long Beach peak 1923 256,000 bbls.
Powell's peak Nov. 13, 1923 354,093 bbls.
Salt Creek peaks 1923 Oct. 4 Nov. 22 and Dec. 29 130,000 bbls.
Last week 2,085,425 bbls.
Tonkawa peak 1923 112,332 bbls.
Stroud peak June 11, 1924 24,763 bbls.
Cromwell peak Aug. 12, 1924 65,497 bbls.
Peak of U.S. Aug. 23, 1924 2,051,399 bbls.
Tonkawa Deep Sand (Bonk Sept. 15, 1924 88,607 bbls.
Tonkawa Deep Sand 2nd week Dec. 12, 1924 89,363 bbls.
Smackover peak May 31, 1924 151,305 bbls.
Burbank 1924 peak 111,865 bbls.
Wortham Field discovered Nov. 22, 1924
MONTHLY INITIAL PRODUCTION IN BARRELS

Oklahoma Gasoline Advance General

Natural Gasolines and Blends Follow in Group 3 But Fuel and Gas Oil Show Slumping Tendency. Effect of New New Jersey Purchase

By C. O. Willson

Advances in all grades of gasoline including natural gasolines and blends, and a slumping fuel and gas oil market were the principal developments in the Oklahoma (Group 3) market during the past week. The higher quotations on motor fuels are the direct development of the large purchase of 58-60 U. S. Motor gasoline from Mid-Continent refiners by the Carter Oil Co., (Standard of New Jersey), explained in these columns last week.

The Standard company completed its purchase on Wednesday and Thursday of last week. Although the company entered the market for 2,000 cars at 9¾ cents basis Group 3 it is understood that actual purchases were around 1,800 cars or approximately 15,000,000 gallons.

As was expected the spot market in Oklahoma and parts of the Mid-Continent began to advance before this order was completed. Refiners who had sold the 58-60 U. S. Motor grade as low as 9½ cents quickly advanced their quotations so that on Monday and Tuesday of this week there was very little material, if any, available under 10½ cents from refiners. A few marketers were fortunate enough to have long purchases at prices which enabled them to undersell the refiners. A majority of the resale agents however were caught short if they were speculating and their haste to cover after the New Jersey purchase partially accounts for the rapid advance in prices.

Higher Gravities Advance

The higher gravity gasoiines and naphthas also advanced. This was a reflection of the large purchase of 58-60 gasoline by the New Jersey company, although increased buying of 64-66 gasoline proved an additional force in boosting prices of that grade. Buying of other higher gravity gasolines was confined mostly to routine orders.

The increased buying of 64-66 gasoline was the feature of the higher gravity product market. Approximately 50 cars of this gasoline was reported purchased out of Group 3 and North Texas Monday, the bulk of which brought 13 cents. Three or four large exporters were involved in the transaction.

Practically all market observers agreed that it would require all of this week and possibly the remainder of April before it would be possible to determine what the permanent effect of the New Jersey purchase is to be in Mid-Continent gasoline market. Up to this writing a rush of jobbers into the market has not materialized. Jobbers in the Middle West have been buying from "hand to mouth" for several weeks and their storage generally is believed to have been reduced to a minimum for this time of the year. It was thought the New Jersey purchase and the rising market might bring a flood of domestic buying which would further aid the market.

A substantial improvement in the domestic movement is still a possibility. Jobbers, as well as all other class of buyers are generally slow in accepting an overnight reversal in price trends such as occurred the latter part of last week but once convinced that the market is to hold or go higher, they can be expected to make up for lost time in large purchases. Not enough time has elapsed to determine whether or not the sellers will be able to maintain the advances in gasoline prices, and thus convince the jobbers of the soundness of their prices.

Lull in Movement

Outside of the buying of 64-66 gasoline, it is known that a lull in the movement of all refined products was felt Monday and Tuesday, which perhaps caused certain uneasiness in some quarters. Others felt that the quietness was only temporary and that it would be but a matter of a few days before sales would pick up.

Another factor which may be influencing the buyers lies in the additional reductions in crude and tank wagon prices announced during the past week. Leading market observers are still of the opinion that neither the Mid-Continent crude price structure nor the Standard of Indiana tank wagon schedules generally will be reduced in the near future. Jobbers located at distant points, however, are not generally convinced of the stability of these markets and letters received by refiners from their jobbing connections reflect this situation.

Purchase of Great Aid

The Standard of New Jersey purchase was unquestionably of great benefit to many refiners. One large buyer who made a survey of the gasoline situation in Oklahoma, Kansas and North Texas on Friday following the Standard purchase reported that a great majority of the refiners were in excellent shape for the remainder of April.

Many have additional gasoline in storage but their sales to the New Jersey company and other April committments have resulted in decisions not to sell any more gasoline unless the buyers are willing to accept the higher prices. This particular buyer will not pay the present asking prices but agrees that his company may change its position before the end of the month, provided the refiners maintain their price schedules or further advance them.

This report and others of similar trend leads to the conclusion that the gasoline market at least will hold firm over the remainder of April even if domestic buying does not increase or further export business develop. Reports are current that other large companies will enter the market and if even a small fraction of this business develops refiners should have no trouble in holding their prices.

On the other hand many refiners are not inclined to hold for higher prices and a few at least will take whatever price concessions are necessary to keep their output moving. Some few have confidence in today's market and although they are hoping for the best they have no inclination to store in anticipation of higher prices.

Other Products

Natural gasolines experienced an even more sensational advance than straight run gasoline prices, on Tuesday being approximately 1 cent higher than last week. Buying improved the latter part of last week. The manufacturers explained this increased demand as due to the Standard of New Jersey purchase.

(Continued on Page 172)

REFINED MARKET BAROMETER

Changes in gasoline prices during the past week were generally upward. The most important advances were in the Mid-Continent, the Middle West and adjoining areas where refiners advanced their price from ¼ to 1 cent. This upward trend in the gasoline market was largely due to the completion of the 15,000,000-gallon purchase of U. S. Motor gasoline by the Standard Oil Co. of New Jersey from Mid-Continent refiners. Pennsylvania gasoline held fairly firm despite the crude reduction and the Bayonne spot price was advanced 1 cent. Heavy consumption of gasoline was reported from all areas. Fuel oils, including gas oils, continued soft. Prices were reduced at many points due to the low quotations obtainable on Smackover fuel.

Mid-Continent—The purchase of 15,000,000 gallons of 58-60, 437 (U. S. Motor) gasoline by the Standard Oil Co. of New Jersey last week and the increased buying of 64-66, 375 gasoline Monday of this week caused a strenthening of gasoline and naphtha, and natural gasolines and blends. Kerosene prices are unchanged although movement of kerosene has slumped. Fuel oil and distillates suffer with prices of fuel oil showing a great decrease. Lubricants unchanged but cylinder stocks show weakening.

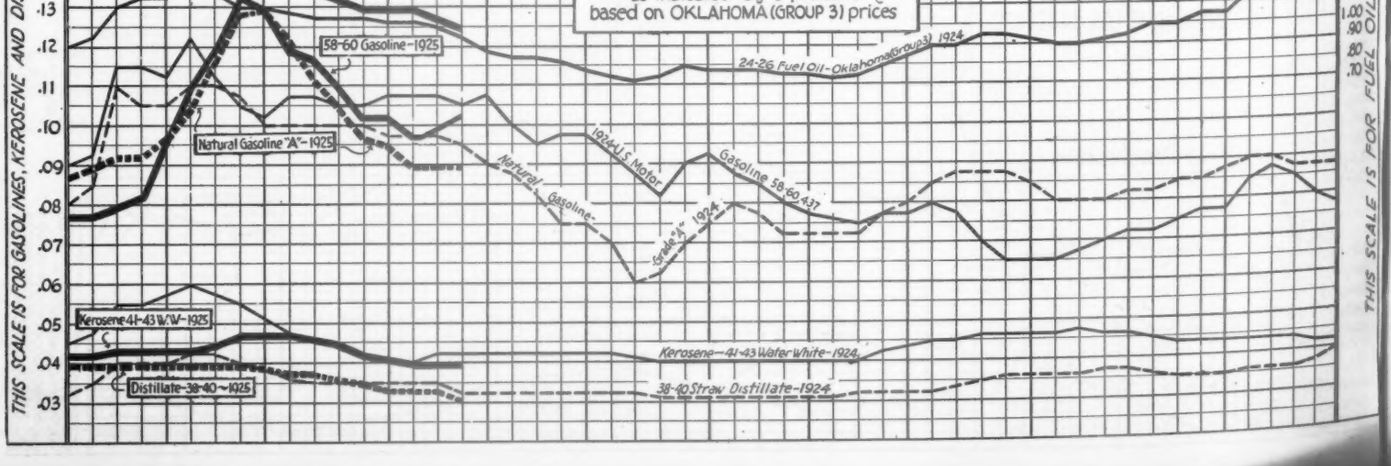
Atlantic Seaboard—Refined oil markets remain firm. Decrease in spot gasoline available causes increase in price of U. S. Motor gasoline. Fuel oil and lubricants soft. Movement in exports show decrease.

Gulf Coast—Prices unchanged although continued weakening is felt in all grades of lubricants and fuels.

Pennsylvania—Gasoline takes firmer trend because of increased demand. Spurt shown in kerosene. Fuel oil weak and movement slow. Cylinder stocks and neutrals weak. Wax flurry felt.

California—Little change in prices but slipping market tendency felt. Oil of all grades soft. Smackover crude feared by Pacific Coast fuel marketers. Kerosene and lubricant situation featureless.

Chicago—Gasoline prices substantially higher. Kerosene dull. Fuel oil weak because of Smackover.


CENTS PER GAL.
JAN. FEB. MARCH APRIL MAY JUNE JULY AUG. SEPT OCT. NOV. DEC.
DOLLARS PER BBL.
THIS SCALE IS FOR GASOLINES, KEROSENE AND DISTILLATE
THIS SCALE IS FOR FUEL OIL
The Oil and Gas Journal's
WEEKLY CHART showing
REFINED MARKET TREND
~as indicated by 5 products~
based on OKLAHOMA (GROUP 3) prices
24-26 Fuel Oil-1925
58-60 Gasoline-1925
Natural Gasoline "A"-1925
Kerosene 41-43 W.W.-1925
Distillate 38-40-1925
24-26 Fuel Oil-Oklahoma Group 3 1924
1924 U.S. Motor Gasoline 58-60 437
Natural Gasoline Grade "A" 1924
Kerosene-41-43 Water White-1924
38-40 Straw Distillate-1924

Production of Light Oil Again Declines

Output of Gasoline Content Crude on Which Main Price Structure Is Based Has Decreased More Than 100,000 Bbls. Daily in Three Months

By Andrew M. Rowley

Despite the fact production of crude petroleum in all fields of the United States registered one of the greatest increases last week in the history of the industry and that a new peak of production since 1923 was reached, the output of crude which may easily be manufactured into gasoline decreased 4,044 barrels daily as compared to the week before. The output of this class of light oil, upon the production and consumption of which the main crude oil price schedule is based, has declined an average of 101,694 barrels daily during the past three months and last week averaged 126,722 barrels daily less than during the week of peak production of 1924—the week ending August 23.

The fallacy of considering the production of crude petroleum in the United States from the standpoint of the total number of barrels brought to the surface of the ground instead of from the standpoint of the output of crude which may easily be made into gasoline is demonstrated again quite forcibly by the figures for the week just past. Those figures show the total production of crude oil in the United States increased 74,110 barrels daily as compared to the week before and that the estimated daily average for last week, aside from being the greatest so far this year, exceeded the peak of production in the United States for 1924 by 28,106 barrels daily.

Prices Based on Products

Crude prices are based upon the value of the products which may be obtained from it by refining. Gasoline is and has been bearing the burden of the refined oil price structure. It is the most important product from a price standpoint made by the refiner. Crude petroleum is purchased by the refiner and the consumption of crude petroleum in the United States amounts to just what the refiners buy.

Hence, to consider crude oil production from any other standpoint than that of its value to a refiner is like accepting a German mark at its face value without trying to cash it. It is true as many veterans in the oil business contend that "oil is oil," but crude oil prices vary from 40 cents a barrel for Smackover heavy crude to $3.40 a barrel for Pennsylvania crude, and the average oil man is interested in crude oil prices. And prices are based on the value of the oil to the refiner and that value depends upon what he can make out of it and what he can get for these products.

Of course, it must be remembered there is a big difference in refineries. The most modern and efficient can take low gravity oil, such as the Smackover heavy crude which has a gasoline content of not more than 4 per cent without cracking, and by cracking it, can obtain as much as 31 per cent yield of gasoline. There are not many refineries located in the heavy oil districts, however, equipped to handle heavy crude in that manner and for all intents and purposes, Smackover heavy oil can be considered as a fuel oil crude just as Gulf Coast crude is valued chiefly for its lubricants.

In the accompanying table showing production of light and heavy oil for the weeks of April 18, April 11 and January 17 of this year and August 23 of last year, the classification was made from the standpoint of crudes easily refined into gasoline and those not lending themselves to simple refining methods. There are numerous small heavy oil fields in the United States not separated in the tables but the production of these fields has not varied to any great extent for the periods covered and the relationship between light and heavy oil production would not be affected by including these fields in the classification which covers the great part of the production of the entire area. For instance, there is a crude oil produced in the Healdton Field in Oklahoma which contains a percentage of sulphur, making it difficult to refine that crude into gasoline. The production of Healdton has not varied much over the period of a year and is a very small percentage of the production of Oklahoma, hence it was included in the light oil production.

The gravity of oil produced in the Southwest Texas fields is higher than that produced in some of the California fields included in the light oil table, but the crude from the latter fields is easily refined into gasoline while the production from the Luling Field in Southwest Texas contains sulphur and is hard to refine into gasoline.

Light Oil Production Declining

Good gasoline content crudes are in great demand and a production of 206,560 barrels daily of Smackover heavy oil, or even a much greater output of that crude will not affect prices of light gravity oils easily made into gasoline. What affects prices of this class is the supply and the demand. The accompanying table shows conclusively the supply is decreasing and has declined more than 100,000 barrels daily in three months. A decline of more than 100,000 barrels daily in the production of gasoline content crude is of vastly more importance to the entire petroleum industry than an increase of about 87,000 barrels daily in total crude oil production, these figures being based on the production last week and the week ending January 17 of this year.

Another important factor to consider and one which should appeal even to those who will look at the total figures for crude oil production and fail to analyze the output from the standpoint of refining value, is the fact the total production of crude petroleum in the United States for the 12 months' period ending March 31 of this year, was 31,000,000 barrels less than it was for the 12 months' period ending March 31, 1924.

Increase All Heavy Oil

A glance at the accompanying table shows the increase in production has come chiefly from Smackover, the Gulf Coast and California. The flush production from the recently discovered deeper sand in the Smackover Field is crude testing from 21 to 23 gravity and of value chiefly as a fuel oil. It is possible to crack this crude and get a good yield of gasoline, but, as stated above, there are about two refineries that are located and equipped to crack this crude, consequently, it is safe to say the bulk of the production will be used for fuel oil.

The increase in the Gulf Coast, due to development in the South Liberty and Hull pools, is crude used for making lubricating oils, it being especially valuable for cold test lubricants in great demand in northern cities in winter.

The California gain in heavy oil resulted from the development in older fields of the State when the newer fields in the Los Angeles Basin began to decline. It will be remembered most of the wells in the San Joaquin Valley were shut down during the period of overproduction in 1923 as the gravity of the oil was so low the prices paid for it did not warrant pumping the wells. The newer fields in the Los Angeles Basin—Long Beach, Huntington Beach and Santa Fe Springs—produced a crude with a good gasoline yield. As gasoline is the product most desired, the output of these light oil fields was used and the wells producing the heavy oil closed down. With the decline in production of the light oil fields, the wells in the San Joaquin Valley were opened and the production of California has been held up around 600,000 barrels a day because of the gain in output of heavy oil which is not used in making gasoline.

No Reason for Pessimism

The petroleum industry is entering upon the period of its maximum demand. This demand is due to the increased consumption of gasoline. Gasoline is manufactured from light gravity crude and this class of crude is in good demand. But the production of light gravity crude has shown a very substantial decrease, as shown in the table.

As far as the main part of the petroleum industry is concerned, the production of crude petroleum in the United States last week averaged 1,423,526 barrels a day, a decrease of 4,044 barrels a day as compared to the previous week; a decrease of more than 100,000 barrels a day as compared to the output for the week ending January 17 and a drop of more than 126,000 barrels a day as compared to the peak for 1924.

PRODUCTION OF LIGHT AND HEAVY CRUDE PETROLEUM IN THE UNITED STATES

	April 18, 1925		April 11, 1925		Jan. 17, 1925		Aug. 23, 1924	
	Light	Heavy	Light	Heavy	Light	Heavy	Light	Heavy
Oklahoma	463,430	------	464,940	------	476,515	------	540,662	------
Louisiana	51,011	------	50,360	------	49,415	------	56,690	------
Arkansas	43,290	206,560	44,195	128,795	42,725	61,800	53,970	88,680
North Texas	155,290	------	147,515	------	129,480	------	125,315	------
Powell	52,800	------	53,400	------	60,750	------	78,961	------
Mexia, Currie, Richland, etc.	29,190	------	28,720	------	40,065	------	53,320	------
Wortham	58,700	------	62,700	------	148,000	------	--------	------
Kansas	85,625	------	85,795	------	82,650	------	84,900	------
Total Mid-Continent	939,336	206,560	937,625	128,795	1,029,600	61,800	993,818	88,680
Gulf Coast	------	103,389	--------	101,840	--------	73,735	--------	84,180
Southwest Texas	------	45,950	--------	45,110	--------	45,290	--------	45,211
Eastern	104,200	------	103,475	------	100,200	------	107,300	------
Rocky Mountain area	90,990	------	94,470	------	82,420	------	123,630	------
California	289,000	306,000	292,000	308,000	313,000	292,000	325,500	289,000
Total United States	1,423,526	661,899	1,427,570	583,745	1,525,220	472,825	1,550,248	506,071
Grand total	2,085,425		2,011,315		1,998,045		2,057,319	

"Sweetening" of Natural Gasoline

Description in Non-Technical Manner of Methods and Practices Followed by Phillips Petroleum Co. in Treating Processes

By W. G. Hiatt*
Research Engineer, Phillips Petroleum Co.

Chemical treatment, usually termed "treating" when applied to petroleum refining, may be defined as the art of removing objectionable properties from petroleum products by "washing" or "scrubbing" them with chemical solutions, thereby improving their quality from the standpoint of color, odor, sulphur content, etc. In gasoline which does not pass the doctor test, these objectionable properties are caused by the presence of dissolved hydrogen sulphide or certain organic sulphur compounds, or both; these compounds may impart to the product a bad odor, bad color, or, in the case of hydrogen sulphide, acidity and corrosiveness. The presence of these compounds is determined by applying the "doctor test" to a sample of the gasoline in question. A "positive test" indicates their presence and the gasoline is called "sour." A gasoline which gives a negative test is termed "sweet." This test is, however, only qualitative and does not indicate the amount of sulphur in the gasoline; moreover, many sulphur compounds, as well as dissolved elementary sulphur, which exist in petroleum gasolines, give "negative doctor tests."

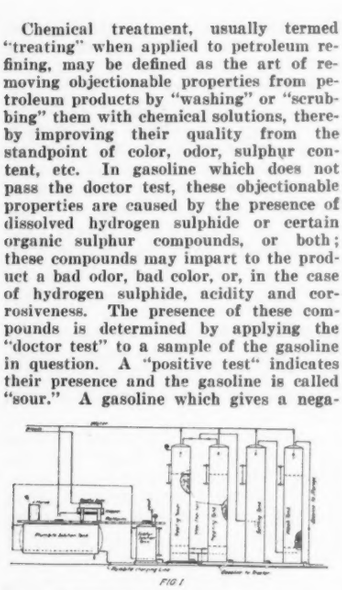


FIG 1

Stadium Plumbite Process Originally Used by Phillips Petroleum Co

For many years it has been the usual practice to "sweeten" gasoline by treatment with caustic soda-litharge, or sodium plumbite solution, either alone or following a sulphuric acid treatment. In many cases this treatment is followed by a steam distillation to completely decolorize the product. However, refinery treating is usually carried out in "agitators"—in many cases, stirred or agitated with air, a practice which is very satisfactory when applied to ordinary refinery products, which are relatively stable and do not volatilize easily, but which may cause large losses when applied to blends containing appreciable qualities of natural gasoline.

For this reason, refiners have realized the benefits resulting from the use of a natural gasoline which may be blended with "sweet" refinery naphthas to produce a "sweet" finished product, and, accordingly, a considerable demand for "doctor sweet" natural gasoline has been evidenced in recent years. In order to meet this demand several manufacturers of natural gasoline have installed treating plants, using either sodium plumbite as a sweetening agent, or, in many cases, the more recently introduced "hypochlorite process."

Treating Processes Used

It is not the purpose to discuss the chemistry of "sweetening" natural gasoline, or the nature of the compounds causing "sourness" in natural gasoline, but briefly to describe, in a non-technical manner, the treating methods and practices which have been used and are at present in use by the Phillips Petroleum Co.

In general, these treating processes, which are of a semi-continuous type, consist in continuously introducing the untreated gasoline into the bottom of a vertical tower containing the treating solution. Various means for securing intimate contact of gasoline and solution have been used. The gasoline leaving the top of the treating tower is conducted to a settling tank where the entrained solution and sludge is settled out and thence through a wash tower containing water (in the sodium plumbite treatment) where it is washed free of any trace of treating solution. The entire system is vapor-tight and there is no measurable loss of gasoline in treating.

In the sodium plumbite method described by Dow the apparatus for a 40,000-gallon plant (Fig. 1) consists of four towers; two 24 inches in diameter by 16 feet high, and two 36 inches in diameter by 16 feet high. The 24-inch towers are filled to the 12-foot level with steel turnings and are connected in parallel for use as treating towers, only one of which is in use at any time while the other is shut down for cleaning out and recharging. This par is connected in series through the first 36-inch tower, which contains no filling material, being used as a separating or settling tank, to a second 36-inch tower, packer in the manner of the two 24-inch towers, and filled with water. The operation consists in continuously pumping the raw gasoline through the plant introducing it at the bottom of the treating tower through which it flows upward through the treating solution, intimate contact being effected by means of the filling material. From the top of the treating tower it is piped to the middle of the settling tower where the most of the lead sulphide precipitate is settled out. Leaving the top of this tower, it is conducted to the bottom of the wash tower, where it is washed free of suspended lead sulphide and remaining traces of entrained plumbite solution.

This treatment requires the presence of free sulphur during the contact of the gasoline and treating solution, and this is best introduced by continuously feeding into the gasoline stream, before it enters the treater, a small amount of gasoline containing dissolved elementary sulphur. This sulphur solution must be added to the untreated gasoline in the proper ratio, just enough to complete the treatment, as an infinitesimal excess will render the sweetened product corrosive, and, in many cases, less acceptable to the refiner than the unsweetened product.

Feature of Process

This feature of the process is accomplished by connecting a vertical cylindrical tank to the gasoline line entering the treaters. For the plant under discussion a 3 by 7-foot tank is used, having a capacity of approximately 350 gallons. This tank is equipped with a pressure regulating valve, a vent valve, a gas pressure connection and a gas agitator. It is also filled with liquid gauges throughout its entire length.

Into this tank, through the vent, is poured 1 pound of flowers of sulphur, and the raw gasoline stream is then diverted from the treaters into this tank. While gasoline is entering it is gently agitated by introducing gas into the bottom of the tank through a perforated pipe. When the tank contains 250 gallons of gasoline, the gasoline stream is switched back to the treaters, the sulphur solution tank put under gas pressure sufficient to force the solution into the stream entering the treaters, and the control valve on this line is adjusted to allow the proper rate of feed. This rate of feed is dtermined by regular, frequent tests of the gasoline leaving the treater. It is necessary to wash and filter samples taken at this point in order to free them from entrained solution and lead sulphide. These samples are taken at hourly intervals and a doctor and a corrosion test made. If there is an insufficiency of sulphur, a "sour doctor test" will result. If an excess is present, the gasoline will be corrosive. The small difference between "just enough" and "too much" makes this process undependable for the production of a gasoline to meet both the "doctor" and the corrosion test. The amount of sulphur required for this purpose is very small, 1 pound being sufficient to treat from 20,000 to 22,000 gallons. On the average, 75 per cent of the gasoline thus treated passed both the tests, the other 25 per cent, including the "sour" and corrosive products, resulting from improper amounts of sulphur.

Treating solutions of various strengths have been used, but with this particular type of treater, a solution made by saturating a 30 degree Baume solution of caustic soda with litharge has given better results, both from the standpoint of economy and effectiveness. The amount of gasoline sweetened per gallon of this solution has varied from 600 gallons to 900 gallons, averaging for several installations, about 750 gallons.

The cost of operation of this plant varies somewhat, depending on the labor charge made against the operation. No extra labor is required, except for mixing solution and cleaning out spent treaters, the routine testing and control of sulphur feed being done in all cases by the stillman on tour.

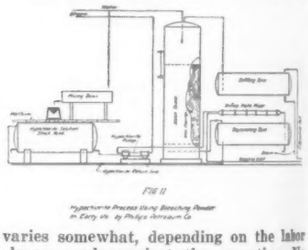


FIG 11

Hypochlorite Process Using Bleaching Powder
Pat. Expy. to by Phillips Petroleum Co.

The cost of chemicals used, reduced to a cents per thousand gallons basis, will run, depending on markets and transportation costs, from 25 cents to 35 cents.

This method, although economical and effective as a sweetening process, has, on account of its unreliability in producing a non-corrosive gasoline, been discontinued in favor of the hypochlorite process.

Hypochlorite Process

Hypochlorites are salts of hypochlorous acid, and, in common with the acid, are powerful oxidizing agents. They are relatively unstable and tend to decompose and liberate oxygen. Hypochlorite solutions have long been used as oxidizing agents in bleaching industries and in the past few years have been employed in petroleum refining, in many instances supplementing sulphuric acid and plumbite treatments for effecting the removal of unsaturated hydrocarbons and "sweetening" of petroleum naphthas.

The most common hypochlorite is probably calcium hypochlorite, solutions of which are made by dissolving chloride of lime, or bleaching-powder. Bleaching powder is prepared, for industrial use, by passing chlorine gas into dry unslaked lime forming calcium oxychloride ($CaOCl_2$). Commercial bleaching powder contains about 35 per cent of chlorine by weight which indicated that about 65 per cent of the lime is chlorinated. It is usually sold on the basis of "available chlorine," analytical determination of which indicates the amount of hypochlorite that may be made from a unit weight of this material. This solution may also be prepared by adding chlorine to a cool solution, or rather suspension, of

*Before Association of Natural Gasoline Manufacturers, Tulsa.

NATURAL GASOLINE MANUFACTURERS OPTIMISTIC REGARDING THE FUTURE

By Neil Williams

Spurred by a general feeling that the future of the natural gasoline industry is unlimited, the Association of Natural Gasoline Manufacturers opened its fourth annual convention at the Mayo Hotel at Tulsa Wednesday. The sessions will continue two days, closing Thursday afternoon.

Three hundred natural gasoline makers, employes of gasoline companies, and others interested in the industry had registered by the time the first session began at 10:30 Wednesday morning. It is expected that by the close of the convention Thursday between 800 and 1,000 persons will have registered.

The optimism over the bright outlook for the natural gasoline industry was brought to a focus in the annual address of the president of the association, D. E. Buchanan, vice president of Chestnut & Smith, Tulsa. Mr. Buchanan's address will be found on the next page in this issue of The Oil and Gas Journal

Most of the Wednesday morning session was turned over to a discussion of safety problems of the natural gasoline industry. Unusual interest was displayed in the discussion and even far after noon it was difficult to close the session because of the many persons who were anxious to take part.

The safety discussion, which was led by Ray E. Miller, safety director of the Mid-Continent Oil & Gas Association, followed a paper on "Safety in Gasoline Manufacturing" read by C. L. Swim of the Skelly Oil Co., Tulsa. Many constructive experiences and suggestions were made by officials of natural gasoline companies at the session, which was rated as one of the most interesting ever held by the association.

Among outstanding constructive suggestions made to reduce accidents in the natural gasoline business were: Education of employes along safety lines, medical and physical examinations of all employes, instruction of all employes on plant operation, and greater mechanical safeguards.

F. L. Chase, operating manager of the Lone Star Gas Co., of Dallas, Tex., presided at the Wednesday morning session and delivered a brief talk telling of the rapid expansion of the Association of Natural Gasoline Manufacturers through the cooperation of all its members. At the close of the morning session, two committees were appointed by Mr. Chase. The first, composed of E. L. Peck, of the Empire Gasoline Co., Bartlesville; J. M. Hall, of the Oil State Co., and R. R. Owen of Marland, will make a report on the president's address. The second committee, composed of L. F. Bayer, vice president and general manager of the Tidal Refining Co.; Emby Kaye, general superintendent gasoline department of Skelly Oil Co., and M. E. Meekley, of the Amerada Co., will nominate the officers for the ensuing year.

Another interesting session was held

(Continued on Page 175)

calcium hydroxide in water, called "milk of lime." "Milk of lime" is prepared by adding unslaked lime, or calcium oxide, to water. Calcium hyroxide is only sparingly soluble in water, and must be kept in suspension in the solution during chlorination. The calcium hypochlorite formed by the reaction between the lime and chlorine is very soluble and, after chlorination the excess calcium hydroxide may be allowed to settle out leaving the clear solution ready for use. Solution of any desired strength and in quantities according to the demands may be thus quickly prepared.

Sodium hypochlorite solution may be similarly prepared from caustic soda solutions and chlorine, the practical advantage being that caustic soda, or sodium hydroxide, is exceedingly soluble in water and these solutions are readily chlorinated without resorting to the use of stirring devices other than the chlorine gas itself which is fed into the bottom of the tank containing the caustic solution. Also, more strongly alkaline solutions may be prepared, which increases the stability of the hypochlorite.

It might be well to mention that the use of hypochlorite solutions as petroleum refining agents is patented by the Anglo-Persian Oil Co. and the licensing of this process is done by the Mathieson Alkali Co. of New York. The Mathieson Alkali Co. is a large manufacturer of

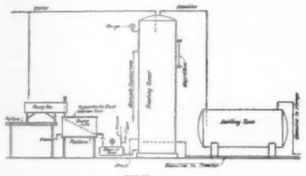


FIG III

chemicals for industrial use and is not charging any license fee to users of the process providing the chlorine or bleaching powder is purchased from them.

The first hypochlorite treating plant installed by the Phillips Petroleum Co. was for the purpose of sweetening a daily production of about 30,000 gallons. A diagrammatic sketch of this plant is shown in figure 2. The design of the plant was made after reference to the paper of Young & Peak and consultation with engineers of the Mathieson Alkali Co. The equipment consists of a mixing bowl, a stock solution tank, a pump for circulating the treating solution, an orifice-plate mixer, a separating tank, a wash tower, and a settling tank.

The bleaching powder is dissolved by placing a quantity, usually about 50 pounds, of bleaching powder and reducing to thick mortar by the addition of water while stirring with a hoe. Lumps are pulverized with a large wooden pestle, usually referred to as the "potato masher." When the lumpy material has been reduced to as fine a consistency as possible water is then added, the mixture is allowed to settle and the liquor drawn into the stock solution tank through a screen. The residue is washed several times with water to completely extract the hypochlorite, and then removed from the bowl as waste. This insoluble residue consists chiefly of calcium carbonate and calcium hydroxide.

Method of Operation

The method of operation is to pump the solution from the stock solution tank to the orifice-plate mixer through which it passes concurrently with the raw gasoline, contact between the two liquids being thus effected by the turbulence produced when they pass through the 1-inch orifices in the plates flanged between the 4-inch pipe nipples. The orifice-plate mixer discharges into the separating tank the treating solution being continuously discharged back to the stock solution tank and the gasoline passing on through the wash tower and settling tank to storage.

This method produced a uniformly sweet and non-corrosive gasoline but mechanical trouble was experienced from the start. Hypochlorite solutions, by virtue of their oxidizing power, readily attack most metals and, at points where the fluid velocity is sufficient to remove the scale deposits formed on the inside of valves and fittings, quickly render them inoperative and useless. This condition is particularly true in the case of the moving parts; i. e., the valve and rods of the pump circulating the treating solution. In addition, small amounts of undissolved material from the mixing bowl would pass through the screens into the stock solution tank and, being light and flocculent, did not settle out readily and, accumulating, entered the circulating system and would eventually encrust the inside of the piping, frequently causing total stoppage.

These conditions caused numerous shutdowns for repairs to and replacement of equipment and consequent irregularity of

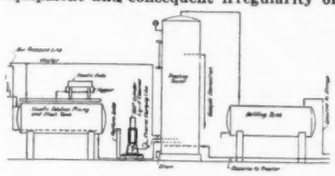


FIG IV

operation. These shutdowns were very annoying and expensive and, after a few months of operation, the entire plant was changed as shown in Figure 3.

Repeated tests of the gasoline treated in the previous installation had failed to show any benefit from washing the treated gasoline with water and the use of the wash tower had been dispensed with. Consequently, this installation is much simpler, consisting only of a mixing bowl, stock solution tank, blow-in tank, treating tower and settling tank. The treating tower is unusually large to allow for the separating of the gasoline and entrained solution above the normal solution level; this being considered necessary on account of the contracting method which consists in introducing the gasoline into the bottom of the treater through slotted pipes, this method serving the double purpose of finely dividing the gasoline and vigorously agitating the contents of the tower. This method of contracting is used because steel turnings, being readily attacked by the treating solution were considered unsuitable, and refractory filling material, such as tile, was not, at that time, available.

Method of Mixing

The method of mixing the solution is the same as previously described, with the exception that larger amounts of bleach powder are made up at a single mixing, two drums of 300 pounds each being the usual batch. About 600 gallons of water are used in a batch of this size, giving a ratio of roughly 1 pound of bleaching powder per gallon of water. This is equivalent to an available chlorine content of around 4 per cent, or 33 pounds per 100 gallons of solution. This solution is allowed to settle in the stock solution tank, and the clear solution drawn from the tank through a swing pipe into the blow-in tank from which it is transferred into the treating tower by means of gas or air pressure. Any desired amount of this solution may be introduced at a single charge, the solution level in the treating tower being maintained by withdrawing, before charging, an equivalent amount of the spent solution. However, in practice, it is endeavored to make a single charge suffice for an entire shift. It is not thought advisable, owing to the tendency of the stored stock solution toward deterioration in available chlorine content to prepare more than a few days supply at a time.

Detailed cost data on this method have been prepared, but rough calculations using plant operation data indicate the cost of chemicals does not exceed 30 cents per 1,000 gallons.

More recently following the lead of several Texas manufacturers of natural gasoline, sodium hypochlorite has been brought into use, supplanting entirely the sodium plumbite treatment.

This change did not, originally, involve any change of equipment in the plumbite plants, the plumbite stock solution tank being used for the stock caustic soda solution. The use of the sulphur solution, and the equipment involved in this feature of the plumbite treating method was, of course, eliminated. (See Figure 4).

A cylinder of liquid chlorine was set in a specially constructed rack, in an inverted position, and placed on a small beam scales. It was then connected by a flexible copper tube, $\frac{3}{8}$ inch in diameter, to a ¼-inch connection in the side of the treating tower. Operating practice was to charge the treating tower with about 250 gallons of caustic soda solution approximately 25 degrees Baume, open the gasoline inlet to the treater and while the contents of the tower was being agitated by the flow of gasoline, to feed into the treater from the chlorine cylinder, 5 pounds of liquid chlorine. The product immediately came through sweet. By waiting until the gasoline came through sour, before repeating the addition of chlorine, the chlorine consumption per 1,000 gallons of gasoline was soon determined, and after several such tests were made, the practice of charging into the treater, at hourly intervals, enough chlorine to treat the gasoline made the previous hour was adopted. In this manner the chlorine concentration of the treating solution was maintained at a very low point, and a large excess of free alkali was at all times present. Occasionally, when a "sour" test indicated the exhaustion of the hpyochlorite, an extra "shot" of chlorine was given, and the operation proceeded in the regular manner.

Due to the difficulty experienced with the corrosion of valves and connections in the chlorine feed line a ¼-inch bypass from the gasoline line was connected into this line, and after each "shot" of chlorine, gasoline was passed into this line, thereby purging it of chlorine and preventing, by means of a "U" trap seal, the entrance of the solution into the line,

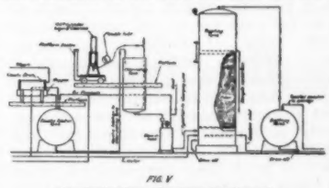


FIG V

through absorption of the residual chlorine, and subsequent contact with the valves and fittings. This innovation completely eliminated the difficulty of corrosion but led to results far more serious.

It was not realized that gasoline, in contact with liquid chlorine, under pressure and in the dark, would react to any marked degree. However, the explosion on February 3, 1925, at the DeNoya plant in the Burbank Field, fully demonstrated the hazard involved in permitting the possibility of their contact under any condition.

A full description of this disaster, explaining its cause and results, has recently been presented in The Oil and Gas Journal by Dr. B. T. Brooks of the Mathieson Alkali Co. It is not considered necessary to do more at this time than to state that, in some manner, pressure was put upon the gasoline line to the treating tower sufficient to force gasoline into the cylinder containing liquid chlorine. A terrific explosion, some seven hours later, was the result. This explanation, at first a theory, was substantiated by experiment. Immediately following this disaster this method was discontinued, and since that time, considerable effort has been spent in the development of a method for the use of sodium hypochlorite involving a minimum of hazard, expense and operating difficulty.

Type of Plant

In Figure 5 is shown, diagrammatically, the type of treating plant for the use of sodium hypochlorite, which has been installed in the two plants last constructed. Incidentally, all the previously installed systems have been modified so as to follow, as closely as their construction would permit, the method outlined below.

The equipment used in the preparation of the hypochlorite solution consists of a tank for holding the caustic soda solution, above which is erected a platform supporting a hopper connected through a valve to the top of the solution tank. The line for conveying the caustic solution to the chlorinating tank discharges over the side of this tank, which has an open top. A platform is built around this tank and on this platform is placed the

(Continued on Page 175)

PRESIDENT D. E. BUCHANAN REVIEWS YEAR'S RECORD OF ASSOCIATION

By D. E. Buchanan
*President Association of Natural Gasoline Manufacturers**

A study of the profit and loss statement for last year would seem to indicate that we would have been better off if we could have skipped the year 1924 entirely. Our product sold for less on the average throughout the year than ever before and if we consider only the return on capital invested, last year was a failure. However, if we consider the position our product occupies in the gasoline situation today, compared with a year ago, we quickly reach the conclusion that the year was not by any means lost.

The very fact that we were forced to revise our manufacturing costs downward in order to meet market conditions will some day redound to our benefit because there is no doubt that manufacturing costs would be higher today had it not been for the low price you were forced to accept last year. The low prices prevailing last year induced many refiners to give your product its first trial and today you have a potential market with practically every refiner running crude oil, to say nothing of the large number of jobbers who are doing their own blending in a proper scientific way and marketing a better grade of gasoline because of natural gasoline. A few years ago only a very few refiners and some of the jobbers had any use for your product. Your market was practically confined to the refiner who needed it to build up the product of his cracking stills. Fractionation in topping or skimming operations was so imperfect that the straight run product the refiner made was ready for the market without the addition of natural gasoline.

Situation Reversed

Today the situation is practically reversed. The majority of cracking plants are yielding a much larger percentage of low boiling point fractions, in many cases properly balanced except for gravity, whereas, fractionation in skimming operations has been improved to the extent that the boiling points of the straight run product from the distillation of crude are entirely out of balance because of the addition of a large percentage of heavy fractions which neretofore were going into kerosene. We all know refiners who three years ago were making 12 to 15 per cent kerosene and who today are making 3 to 4 per cent, and in some cases none at all. This improvement in fractionation has in many cases nearly doubled the yield of straight run gasoline from skimming stills and it does not mean they are throwing kerosene into their gasoline. It simply means they are taking out the gasoline which they formerly left in kerosene. It is because of this change in skimming plant operation, and not because of the increase in cracking capacity, that you have found a market for your product with every refiner in the country. The trend in refining practices will be of necessity toward even more perfect practionation in the future and for that reason we have a right to expect an increased demand for our product, per barrel of crude run through refineries, to

(Continued on Page 175)

*Before Association of Natural Gasoline Manufacturers, Tulsa.

Big Lake Field Is "Wildcatter's Dream"

Two Companies Control Acreage. Recoverable Oil from One Horizon Estimated at 65,000,000 Bbls.

By C. D. Lockwood

SAN ANGELO, Tex., April 20.—Away out in the flat lands of western Texas is an oil field that symbolizes to perfection the rosiest idea of a "Wildcatter's Dream." It is known as the Big Lake Field and is regarded as one of the biggest potential oil fields in the sovereign State of Texas. As the geologist might possibly express the situation, Reagan County is the "type locality" wherein may be traced outcrops revealing all of the romance, the hope deferred and success attained that characterizes the never-ending quest for oil.

With the latest well, the Big Lake Oil Co.'s No. 18, flowing better than 8,000 bbls of 39 gravity crude daily; with upwards of 100 locations known to be equally well situated with regards to structure and capable of yielding wells of nearly the same calibre; with 19 other producing wells, more than half of which have never been drilled in far enough to test their productivity but which have been flowing gusher amounts of oil for some time; with approximately 5,400 acres of territory practically proven already, and indications in a north extension test pointing to a probable further extension of the boundaries; with the one producing horizon conservatively estimated to contain more than 65,000,000 bbls. of recoverable oil; and with at least three pay sands to shoot at below the present producing level, one of which is 60 feet thick in a failure on the east side of the field; and with the 2,400-foot gas sand capable of making 500 to 1,000 bbls. in many of the wells; with all of these remarkable facts exclusively the characteristics of the Big Lake Field, and possessed solely by two companies, it is truly a "Wildcatter's Dream," and there is just one factor which prevents it from adding to the present demoralization of the market. That is its inaccessibility.

A Two-Company Field

The Humble Oil & Refining Co.'s 8-inch pipe line which is being laid from Texon, in the field, to Comyn, a distance of about 200 miles is nearing completion and will probably be finished by June 1, but it will not be able to handle more than 30,000 bbls. daily whereas the field could easily be brought into the 100,000-bbl. class within 60 or 90 days if conditions permitted. Both the Big Lake Oil Co. and the Texon Oil & Land Co., the two concerns having exclusive control of the field, hold contracts with the Reagan County Purchasing Co. to take 5,000 bbls. daily from each concern up to December 1, 1925, and 10,000 bbls. daily thereafter, at prevailing Mid-Continent prices.

No wildcatter in the highest flight of imagination could ever dream of more complete control of a major field than these two companies exercise. The accompanying map shows clearly just how thoroughly the Big Lake Oil Co. and the Texon Oil & Land Co. dominate the situation. Dry holes which have been drilled in practically all directions have virtually limited the field to the acreage of these two companies. One duster which doesn't show on the map was drilled by the Transcontinental Oil Co. in Section 10, Block 1, about 5 miles southwest of the producing area. It found the sand at 3,310-20 feet dry. Elevation of the well is 2,935 feet.

Two Interesting Tests

Two extension tests which are commanding considerable attention now are north and southeast of the field, respectively. The former is shown on the map in Section 13, Block 9, and is being drilled by McCamey, Johnston and others for a one-half interest in the 40 acres on which it is located, owned by the Texon Oil & Land Co. Last Friday this test was shut down for boiler repairs at 2,460 feet and barring further delays or accidents it should be in within 10 days or two weeks. Due to the fact that the formations have been running almost foot for foot with the Big Lake Oil Co.'s No. 5, a mile to the southwest, except for the top of the salt which was found a little low at 1,150 feet, men in the field think that it will be a commercial well. The bottom of the salt, which geologists regard as a better indicator than the top, was reached at 1,630 feet, or five feet higher than in Big Lake's No. 5. This makes it appear that the field will embrace all of Section 24 and may take in a lot of Section 13.

The other extension test mentioned is the Texon Oil & Land Co.'s No. 3, Section 35, Block No. 8, southeast of the field, Hopes for it are not so rosy as geologists have mapped a fault running diagonally southwest through Section 35. If the assumption that a fault exists there is correct, the chances of getting a well in that location are slim because it is on the down-thrown side.

Believe Structure Faulted

Several peculiarities found in Big Lake wells have led to the belief that the structure is faulted, not only in the direction indicated but probably at right angles to it in several places. The possession of an honest-to-goodness fault undoubtedly helps to put the field in the fashionable class but there are inconsistencies hard to account for in any other way. For instance, Big Lake's No. 14, mentioned above as having drilled 69 feet of pay sand, is thought to be located on a lateral fault or fissure of some kind because of the large amount of paraffin which choked it, as well as the extreme thickness of the pay.

Samples of each screw from several of the wells have been examined under the microscope and have shown that after passing into lime under the redbeds and then getting sand, the drill finds redbeds again. This is accountable only on the theory of a fault.

The "Texon pay," as the producing horizon is known locally consists of oolitic dolomite, which is marine Permian in age. However, it is possible that the oil is coming from strata of Pennsylvanian age at greater depth, having seeped up through the faults and fissures. Samples from the Texon Oil & Land Co.'s "Mystery well," located in Section 22, Block No. 9, which was drilled to 6,003 feet, were treated with ether, and revealed that black shale from 4,500 to 6,000 feet contained oil throughout the thickness of the formation. This black shale is probably of Pennsylvanian age although that has not been definitely determined.

Another fact which lends support to the fault theory is the steepness of the dip from No. 18 on the Big Lake property to this deep duster, amounting to a little more than 500 feet. While these two wells are more than a mile and a half apart, the top of the structure probably runs in a northeast direction much nearer the deep well. The dip from No. 18 to No. 5 in a northwesterly direction is only 94 feet.

As brought out by Dr. Leroy T. Patton in his paper on the "Subsurface Geology of the Reagan County, Texas, Field," read before the recent convention of the American Association of Petroleum Geologists at Wichita, Kansas, the oil occurs in an oolitic dolomite in a majority of the wells, and in all cases in strata closely related to the dolomite. The formations contain large amounts of anhydrite which is mistaken by the drillers for lime so that microscopic examination of well samples causes many changes in the logs.

Features Shown by Map

The accompanying chart showing a part of the Big Lake Oil Co.'s No. 12 and the indicated depths at which other sands may be expected below the Texon pay presents a clear picture of subsurface conditions in the field. The lower sands and their depths are calculated from logs of dry holes around the field. In the 6,000-foot duster, for instance, a good flow of gas was encountered 60 feet under the Texon pay in a sand 80 feet thick. About 270 feet under the Texon pay there is a pure sand body 20 feet thick and 450 feet under the Texon is a 10-foot sand, while underlying that is a body of sandy shale 120 feet thick. Assuming that the oil is coming from below through fissures or faults, the chances are better for good oil saturation in the lower sands than in the Texon pay. It is probable that a deep test on top of the structure to determine this will be made as soon as an outlet for the oil is provided.

Enormous gas pressure has contributed to the difficult drilling problems in the field. The Big Lake Oil Co.'s No. 17 in Section 1, Block No. 2, was shut in as a gasser for a long time although it is now being killed and will be drilled on down to the oil sand. This well blew off for four days and when gauged was found to be making 87,000,000 feet of gas. Depth was 2,460 feet. The same company's No. 19 had about the same amount of gas but was never gauged. Number 20 had a like amount and the gas was so strong that it blew the tools out of the hole.

Big Gas Pressure

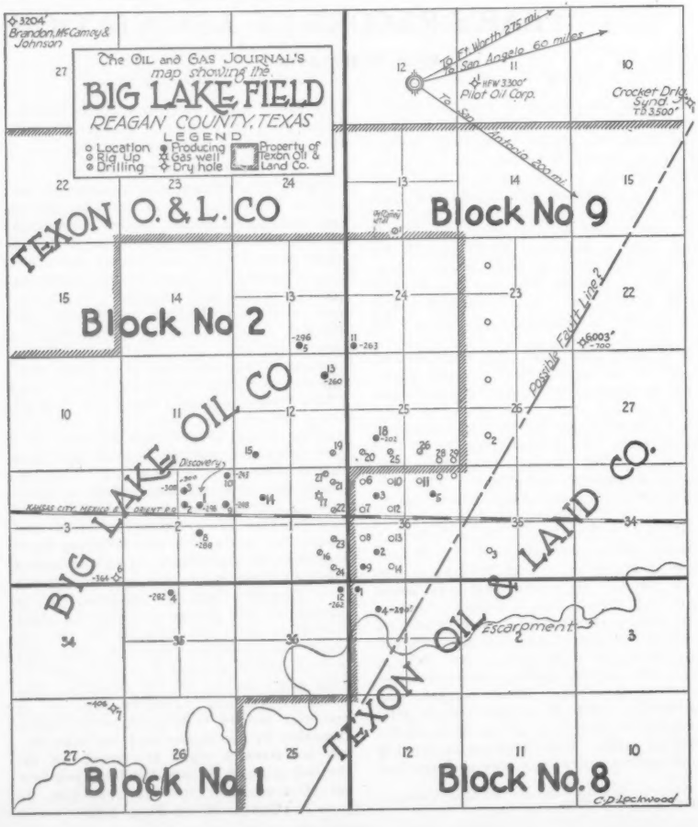
According to the driller on this well, when the gas sand was scarcely touched, the tools were lifted enough to break the line and they were lost, the gas probably making a large cavity at the bottom of the hole. While attempting to drill by them, the heavy gas was penetrated and the second string of tools promptly went through the crown block. This occurred just as crews were changing so four men were present and all of them swear that when the tools shot into the air they were white hot. When they hit the ground, at least, they coiled up like a piece of string. The original tools were found jammed about half way up the pipe. This is a sample of what the drillers have to contend with when they strike the gas. Big Lake No. 21, No. 23 and No. 25 also had this enormous gas flow. Number 22 has been delayed by a fishing job and has not yet reached the gas sand.

Strange as it may seem, Big Lake No. 18, and the Texon Oil & Land Co.'s No. 3, the two highest wells on the structure at present, enocuntered very little gas at this level.

This gas is dry, resembling the West Virginia and Pennsylvania gas in odor and illuminating qualities, according to H. D. McCracken, vice president and general manager of the Producers Pipe Line Co., pipe line subsidiary of the Transcontinental Oil Co. In Big Lake No. 23 and No. 25, enough oil was found with this gas to have produced 500 to 1,000 bbls. daily, and when conditions permit, twin wells will be drilled to this sand at these locations. Because of offset necessities, however, they were drilled on down to the 3,000-foot pay.

A. M. Hagan, chief geologist of the

(Continued on Page 176)



NEWTON EQUIPMENT

The Pacific National Gasoline Company's plant shown here tested 100% charcoal test. Newton Plants are GUARANTEED to test 100% charcoal test. An order for the FOURTH Newton plant for the Pacific National Company has just been received. Newton efficiency has made a Newton Booster of the Pacific National.

In this plant, produced gasoline for less than one cent per gallon

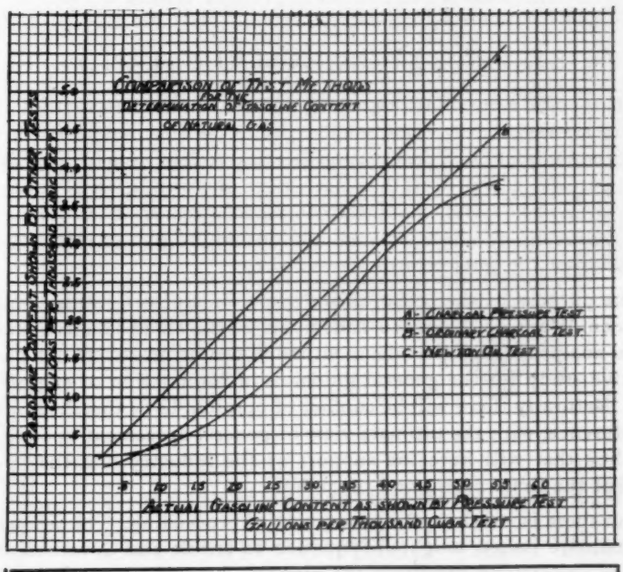
The Pacific National Gasoline Company purchased a Newton Plant in September, 1923. The cost per gallon of gasoline produced, on a 3,000-gallon basis, *taken from their books,* is as follows:

	Per Gallon
Cost of Absorption Oil	.00114
Cost of Wages	.00565
Cost of Sundries	.00468
Total cost per gallon	.01147

Recently their third Newton Plant (illustrated above) has been put in operation and shows an average cost per gallon of gasoline produced, on a 6,000-gallon basis, of .0052 or one-half cent per gallon!

This arresting proof is conclusive evidence that Newton Equipment will produce absorption gasoline at less operating expense than any other plant equipment in the country. They represent a lower investment and higher salvage value.

We will be glad to tell you how Newton Absorption Plants, or separate Newton Equipment, will add to the efficiency of your present plant. We manufacture, to meet your particular requirements, such equipment as Absorbers, Dephlegmators, Knock-out Boxes, Heat Exchangers, Evaporators and Cooling Towers.


Comparison of Test Methods for the Determination of Gasoline Contents of Natural Gas
A- Charcoal Pressure Test
B- Absorber Charcoal Test
C- Newton Oil Test
Actual Gasoline Contents as shown by Pressure Test
Gallons per Thousand Cubic Feet

Write Our Representatives

Refiners Const. Co. Transportation Bldg. Los Angeles	Hurley Bros. Kennedy Bldg. Tulsa, Okla.	Tom McGuire 1st Nat'l Bank Bldg. Denver, Colo.

Members of the Association of N. G. M. are cordially invited to call during the convention at our Tulsa offices, Hurley Brothers Gasoline Co., Kennedy Bldg., for any information regarding Newton Absorption Plants and Equipment.

NEWTON PROCESS MANUFACTURING COMPANY, Fullerton, Calif.

NEWTON PROCESS MANUFACTURING COMPANY

The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

Published Weekly by
THE PETROLEUM PUBLISHING COMPANY
114-116 West Second Street
TULSA, OKLA.

Established as an International Publication in 1910 by Patrick C. Boyle

President - - - - - - - - - - - - - Frank T. Lauinger
Vice President and General Manager - - Robert W. Egan
Treasurer - - - - - - - - - - - - - H. J. Bryan
Secretary - - - - - - - - - - - - - W. T. Bryan
Editor - - - - - - - - - - - - - James McIntyre
News Editor - - - - - - - - - - Andrew M. Rowley
Associate Editor - - - - - - - - - W. T. Anderson
Refinery Editor - - - - - - - - - - C. O. Willson
Advertising Manager - - - - - - - - Clarence Morris
Circulation Manager - - - - - - - - J. P. Mulkern

DISTRICT ADVERTISING OFFICES
30 Church Street — 1328 Peoples Gas Bldg.
NEW YORK — CHICAGO, ILL.
PITTSBURGH, PA., 1003 Jones-Law Bldg.

TERMS OF SUBSCRIPTION
(By Mail, Postage Prepaid)

Single copies - - - - - - - $.15 — One year (in United States) - - $6.00
Three months - - - - - - - $2.00 — One year (in Canada) - - - - $7.00
Six Months - - - - - - - - $3.00 — One year (foreign countries) - - $7.00

ADVERTISING RATES ON APPLICATION
Telephones: 6291-6292-6293
Remittances by Checks, Drafts, Express or Postal Money Orders should be made payable to
The Petroleum Publishing Company
Cable address, "Oilgasnal"

MEMBER AUDIT BUREAU OF CIRCULATIONS

RISK OF EXPOSING OUR HAND

All reports from Washington agree that the leaders in the oil industry are responding frankly and fully to the questionnaires sent out by the Federal Oil Conservation Board. A few have been made public but the board itself has not given out any, a wise policy where, as in some cases, the questions asked directly affect the national wellbeing, or where isolated opinions might give an erroneous impression of the judgment of the industry.

The purpose of the board, as stated by President Coolidge and Chairman Work, is to secure data upon which an exhaustive and helpful analysis of the petroleum situation can be made. It is a cooperative study for the general guidance in formulation of suggestions. Naturally there will be conflict of opinion, to be threshed out in conference, with the ultimate view of general agreement upon an oil policy that will have the support of the industry and the approval of the Government and the public.

But there is a right and a wrong way of proceeding. The second questionnaire issued sought information to enable the Government board to understand definitely the views and possible plans of the industry as they relate particularly to foreign concessions apropos production and development.

One question was, what is the outlook for a surplus of foreign oil over foreign requirements?

Is the proposition of this surplus in American hands sufficient to assure us of a continuing supply?

What is your idea of the extent of such control at present?

Is the refining industry likely to remain in this country or to follow the production of crude oil?

How can reserves abroad be established and held either by American or foreign interests without actual production therefrom?

To what extent are activities in other countries toward the development of shale and of other motor fuels likely to affect the petroleum situation?

What cooperative arrangements are in existence or are desirable in connection with foreign exploitation that will eliminate the duplication of exploration costs as well as remove other handicaps which our nationals now encounter?

These questions were asked to assist in the determination of a national oil policy.

The President in his letter creating the board said: "It is even probable that the supremacy of nations may be determined by the possession of available petroleum and its producers."

The board itself has said that "one angle of this complex situation is the relation of foreign production and reserve to the future needs of this country."

The President's commission on oil reserves has declared that "the oil problem of the future involves far more than the Naval needs alone, as the national defense includes provisions for war industries, sea-borne transport, and army movements—all the activities, in fact, of a mobilized nation."

Plainly, in the consideration and discussion of a national oil policy in relation to other nations, the United States must be at least as prudent as other nations are in planning their national oil policies. The Federal Oil Board has asked leaders in the oil industry questions touching the national oil policy which will, of course, be answered freely but which should not be broadcast for all the world to know.

Other nations are not telling us what their oil plans are. They have no desire to give us that advantage. No more can we afford to expose our hand to our foreign competitors or possible enemies.

The information sought by the President's board is being turned in but with the confidence that the Government will be alert and zealous in protecting America's oil interests against injudicious or injurious disclosure abroad.

The Secretaries of War, Navy, Interior and Commerce, familiar with international trends, understand the vital importance of reticence in these matters.

National rivalry in the pursuit of petroleum, now so universally recognized as a prime mover in modern civilization, has dominated world politics since the war.

Abroad oil companies are working under the protection and active support of their Governments who conceal the alliance under the seal of diplomatic secrecy.

America cannot handicap the labors of those upon whom it depends for its future petroluem supply by being less cautious. This realization has caused the Conservation Board to withhold from publication the replies it has received to its questionnaires, reserving the information for the general conferences to be held later with the industry's leaders.

Out of these conferences, with the suggestions offered in the answers to specific inquiries as a basis for discussion, the Government, the country and the industry can hope for the evolution of a national understanding and policy that will do all that is humanly possible to develop and maintain the petroleum preeminence of the United States.

Unfortunately there are many Americans who know no better than to echo the demagogic notion that the efforts of American oil companies to develop oil fields abroad are merely selfish enterprises in which the American people have no concern or interest. The fact remains that had it not been for these enterprises of American oil companies, notably in Mexico, American use of the motor car and truck would have stopped far short of its present development.

This is more likely to increase in the future. It is recognized by every one familiar with oil production that we are going to be more and more dependent upon oil from abroad as the years go by. If the time is permitted to come when American motorists and other consumers of petroleum products have to depend upon oil from foreign fields and foreign companies there may be regret that this generation did not better understand the national necessity of supporting our own oil companies in their effort to assure our future supply.

DRESSER
COUPLINGS DOMINATE

Dresser Style 38 Couplings are made for all sizes of pipe, from ½" up, and are used on pipe lines for every purpose

Dresser Steel Pipe Coupling Style 38, such as was furnished for the 40" gas line shown on the right

Flexible, strong and durable, Dresser coupled pipe lines assure maximum service. There are thousands of miles now in use for the transportation of gas, oil, air and water.

S. R. DRESSER MFG. CO.
BRADFORD, PA., U. S. A.

Southwest Texas Fields

By Staff Correspondent

Lack of water has held up many developments in Lockhart Field. Pipe lines to carry water being completed and number of completions will result. Valuable acreage changes hands. Earthen storage proved impracticable as light gravity oil disappears in ground. Many drilling operations.

SAN ANTONIO, Tex., April 18.—Final steps were being taken at the close of this week in the sale of the McClannahan & Crouch 36-acre M. L. Brewer tract to Mills Bennett, of Houston, for a consideration said to be $50,000 cash, $100,000 in oil and an eighth overriding royalty. All the parties were in Houston today to close up the deal but it is understood that the figures above are not far from the facts.

The McClannahan & Crouch well on a 36-acre lease nearly a mile to the northeast of the discovery well of Lefevre & Storey was the first well to get spudded in after the discovery well was brought in and found the pay sand but several other wells were completed ahead of it. It is now pumping about 200 bbls. a day and will flow when agitated. There are two other derricks up on the lease and one of the two rigged up and spudded in. The sale, if the figures are correct, is the highest price acreage has brought thus far. Eugene Sights holds the lease and McClannahan & Crouch drilled the well on a 50-50 basis. The Lefevre & Storey 30-acre tract with the discovery welll on it sold a few days before at a price said to be $110,000, half cash and half oil, though no official figures have been given out.

The Magnolia Petroleum Co. has posted a price of $2 a barrel for Lockhart crude, thereby classing it with North Texas crudes.

Still Lack Enough Water

Water from the new pipe lines had not yet reached the field today. It is promised now early in the coming week. The new 4-inch oil pipe line which the E. & K. Pipe Line is to lay to supplement the 3-inch line may be turned into a water line. The Humble and Gulf are planning a number of wells that will almost surround the Sun's A. H. Gomillion lease and the plan is to ship in water in oil tank cars from Lockhart to Dale and run the water through this oil pipe line up to the Sun's lease to enable it to keep up with the offsets.

Magnolia Pipe Line Co. has completed laying a gathering line from the center of the field to its pumping plant on the Riddle lease, 1½ miles south, and has up some 5,000-bbl. tanks. It began running to Cranfil & Reynolds-Marland Oil Co. oil last Thursday. There is only one well completed on the lease at this time and that is the No. 1 Gomillion, brought in Friday noon, April 10. When the Magnolia began taking the oil the following Thursday there was 7,500 bbls. in steel storage on the lease, an average of 1,250 bbls. per day for six days.

However, a vast amount was lost by putting it in earthen storage. With its steel tankage on the lease full and while waiting for more tanks to be erected, 1,000 bbls. were measured into earthen storage and the entire amount went down into the ground and not a drop of it was saved. During the first two or three days the well was producing it ran into earthen storage and was pumped up from there into steel storage. It is believed that the well made about 3,500 bbls. the first day and averaged close to 2,000 daily for the first week.

Earthen Storage Impracticable

The Marland experience with earthen storage demonstrated that such storage is utterly impracticable in the Lockhart Field. Production from the field the past week has averaged right around 4,250 bbls. a day, counting the runs of the E. & K. Pipe Line to Dale and the runs from the Marland and Sun leases, which is being taken by the Magnolia. Magnolia was keeping ahead of production the past week with steel storage and aims to do so till its pipe line is built to its Luling tank farm, where it connects up with the line to Hull.

Marland Oil Co. has a water right lease on a tract on Plum Creek and in connection with the Humble Oil & Refining Co. is laying a water line to the field. Marland has closed a deal with E. L. Smith Oil Co. to drill on the E. T. Lackey, over a half mile southwest from the discovery well, the location being in the corner nearest production. A location has been made on a second F. A. Gomillion lease of the Marland Oil Co. nearly 1 mile east of the F. A. Gomillion on which the Cranfil & Reynolds-Marland well is located. Another location has been made on the Marland's Tabor lease, which is southwest of the production and more than half a mile west of its Lackey lease. Marland expects to have all these drilling in a week and they are nearly surrounding production.

Other Operations

Humble has contracted with Al Buchanan to move in three rigs to the Mrs. M. L. Brewer, offsetting the Canfil & Reynolds-Marland well on the south and offsetting the Mid-Kansas on the north. Humble has several other tests offsetting other wells, all of which will be drilling as soon as water is available.

E. & K. Pipe Line Co. ran 14,300 bbls. and shipped out 65 tank cars of crude during the seven days ending April 18. Production of the field for the week ending April 18 is estimated at 29,750 bbls.

Morris Stein is making a location on the Trigg tract of 1,428 acres, several miles northeast of the Lockhart Field, and in Bastrop County, a little northeast of the test drilled by the Mid-West Texas on the G. A. Smith farm.

George B. Eggleston, of the E. & K. Pipe Line Co., states that the first figures given out on the shipments of oil from the field down to April 11 as being 45 cars was in error and that the actual number was 65 tank cars.

Miscellaneous

Lefevre & Storey have a derrick pattern on the ground in northern Frio County to drill the No. 1 L. E. Blackaller, in the James Gourley survey. The location is 1,625 feet east of the center of the Frio River and 3,354 feet south of the north line of the Blackaller land. It will be a 3,000-foot test.

Cole Petroleum Co.'s No. 7 Benavides was completed last week in Webb County, close to the Duval County line, and was gauged by The Texas Co. representative as making 42,500,000 feet of gas. The Killiam No. 1 Benevideo, on Cole Petroleum acreage, gauges 45,000,000 feet of gas and with the completion of these two wells the field has four gas wells completed.

Glassco & Fallins' No. 1 Tips, at Three Rivers, in Live Oak, was drilled in after setting casing with cement at 660 feet, and is a good gas well, making several million feet. It has not been gauged. A pipe line was built to Three Rivers, 1 mile away, while the well was being completed and the gas is being used there.

Halloran & Gilliam, Mexico operators, have spudded in No. 1 Alonzo Peeler, in the southern part of Atascosa county and set 60 feet of 12½-inch casing.

DeLange, Eiser & Co., in southern Atascosa, southeast of Campbellton, lost the drill stem in the hole at 4,850 feet and fished out 3,800 feet of it. They are plugging back to develop some gas sands found below 2,000 feet.

The Lockhart Field has been about at a standstill during the past week because of lack of water, but the Gulf Production Co. has brought in its No. 2 Beaty, making 75 bbls., one location south of its No. 1, which is an offset on the south of the Sun Oil Co.'s No. 2 A. H. Gomillion, which came in making at the rate of 2,000 bbls and a couple of days ago made 1,400 bbls. The small size of the Gulf's No. 2 Beaty is not entirely accounted for thus far, though No. 1 came in for about 250 bbls.. No. 1 was the second well completed in the field and was considered big until the Sun and Cranfil & Reynolds-Marland came in for bigger production.

Showing use of torsion balances, under tents, in Lockhart Field.

Mike Danley's No. 1 A. H. Cardwell, nearly 1 mile to the southeast of the discovery well, which early in the week topped the pay at about 1,320 feet, is not yet completed and while there are prophets who insist that it will make a well when completed, there seems to be a division of opinion among scouts. Those who claim it will make a well are not estimating its production very large. Water was so scarce that the well was drilled in with mud so thick that it would not flow down in the slushpit to the intake of the pumps and was pushed down with boards. Casing is being run and the well will be washed out and an attempt made to bring in an oil well.

Considerable interest is being taken in the announcement that Doctor Bybee, professor of geology of the Texas State University, who did a great deal of field research work at Thrall in Williamson County, when that field came in producing from the Serpentine, and has been studying the Lockhart Field, has found traces of the Serpentine in the slushpits of the old abandoned wells drilled a couple of years ago with rotary rigs on the R. J. Jolley farm, 3 miles west and a little south of the discovery well in the new field, and the Fred E. Perry well a little over 1½ miles northwest of the discovery well and also in the slushpit of the Mid-West Texas well on farther north and over the line in Bastrop County on the Frank Litton farm.

The formation was not recognized in the logs of the wells at the time they were drilled, but the finding of what seems to be the serpentine in the slushpit of these abandoned wells now opens up questions of considerable importance. These three abandoned wells were all on a structure traced out by some of the best geologists. Between these dry holes and a line bisecting the Sun's Gomillion No. 2 and the Marland's Gomillion No. 1, no tests have been drilled. All the other producers of the new Lockhart Field are on the opposite side of that line.

Lefevre & Storey the past week sold to the Witherspoon Oil Co. of this city for a sum said to be in the vicinity of $110,000, one-half cash and one-half oil, the 30 acres out of the M. L. Brewer tract on which is located their discovery well and on which they had one other well drilling and derricks for others. The discovery well is being deepened and for the time being is off production. The tract is offset on the north by the Sun Oil Co.'s A. H. Gomillion tract.

Lockhart Promises Water

Water for the new field has been promised by the people of Lockhart in abundance by the last of this week. It was expected to be ready to deliver by last Wednesday but was not completed then. With the completion of the laying of the line from Plum Creek a little east of Lockhart to the field there will be a big campaign of drilling started for there are around 30 derricks up and material for others moving in. E. & K. Pipe Line Co., which completed a 3-inch oil pipe line to the Katy tracks 3 miles south after the discovery well was in, expects to have an additional 4-inch line completed by the coming Wednesday. Magnolia has put in considerable storage and is laying pipe from both ends of its 26-mile extension from its Luling tank farm.

Thus far the bulk of the oil from the field has been shipped to Sabine Pass and from there by vessels to Marcus Hook and is being taken by the Sun Oil Co.'s refinery there. There is no posted price on the crude.

If water is available the coming week as promised, drilling wells will be started in nearly every direction at considerable distance from the discovery well that will soon determine the boundaries of the proven field. Marland Oil Co. is making 50-50 contracts on its acreage. Joe Walsh has a contract to drill on Marland acreage out of the M. Eppright tract and the location of the derrick is about one-half mile nearly straight east from the McClannahan & Crouch well and over 1 mile east of the discovery well of the field. Marland has made a contract with other interests for a 50-50 test on its lease out of the E. T. Lackey tract three-fourths of a mile south and a little west of the discovery well. A derrick is also going up on a 28-acre strip out of the H. E. Palmer tract which is an offset to the McClannahan & Crouch's No. 2 Brewer, for which a derrick is up.

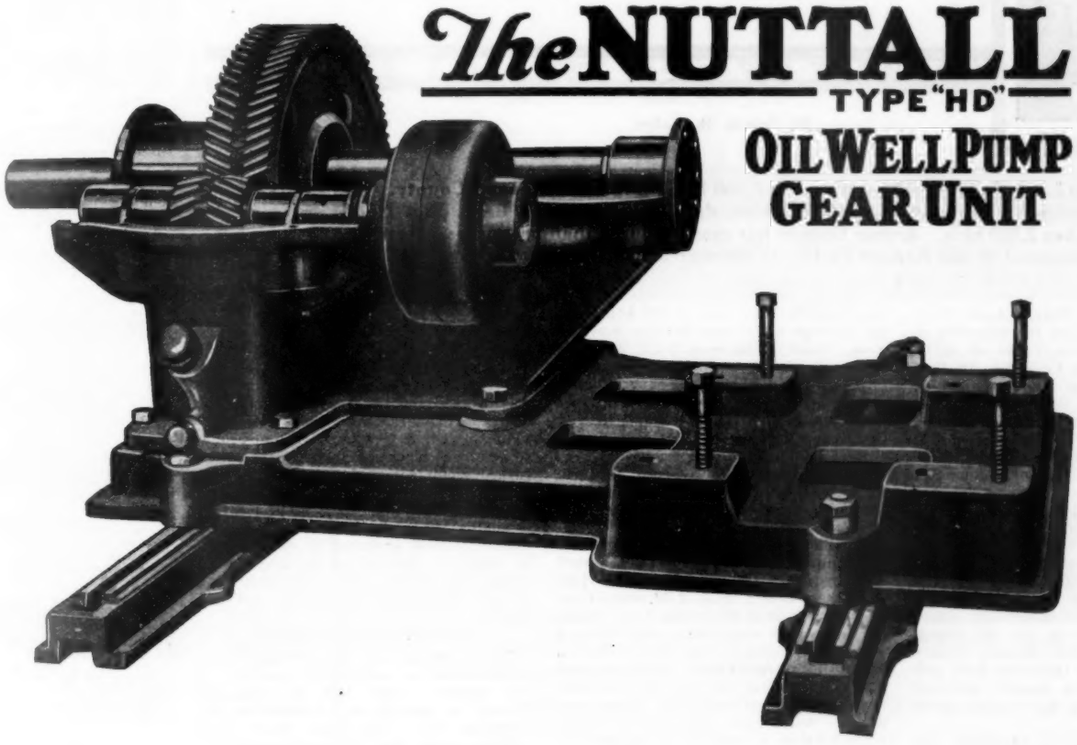
Morris Stein has leased 20 acres out of the Austin Nix tract and is to drill. His lease is adjoined on the north by J. K. Hughes. Acreage has been purchased during the past week by W. O. Shock, an oil operator from St. Louis, for himself and for the Independent Oil Co. of Oklahoma, which will be drilled.

Hadley & Harmon-Continental Oil Co.'s No. 1 Pryor in Zavala County has encountered an oil showing in chlorite below 1,550 feet and chlorite being associated with volcanic and sometimes found in the serpentine which is the producing formation in the Lockhart Field, it is attracting considerable interest. The Continental well encountered considerable gas at around 1,000 feet and passed through 100 feet of liquid asphalt from 1,350 to 1,450 feet. It is expecting to reach the Austin chalk at around 1,800 feet. The Hadley & Harmon-Old Dominion are drilling below 3,600 feet in Del Rio.

The known existence of volcanic in-

(Continued on Page 163)

The NUTTALL TYPE "HD" OIL WELL PUMP GEAR UNIT



The Nuttall Oil Well Pump Gear Unit Completely Assembled on Bed Plate and Slide Rails Ready for Attaching Motor

We can only hit a few high spots in an advertisement, but have complete information in bulletin form which we will be glad to send on request.

This is a rugged, heavy-duty, herringbone gear, single reduction unit, for pumping, cleaning, bailing, handling rods, tubing, etc.

The gears operate in oil, in an oil-tight, dust-proof case. The pinion and shaft are integral, heat-treated and the bearings are oil ring type. The gear is a steel forging, heat-treated, with extra heavy rim for flywheel effect, and the gear shaft runs on "Hyatt" Roller Bearings.

Belt and chain adjustment, and alignment to motor shaft are greatly facilitated by slide rails and flexible coupling.

Complete information or a consulting engineer at your service for the asking.

Philadelphia Office
Westinghouse Bldg.,
30th & Walnut

R.D. NUTTALL COMPANY
PITTSBURGH PENNSYLVANIA

Chicago Office
2133 Conway Bldg.

Canadian Agent
LYMAN TUBE & SUPPLY CO.,
Toronto, Montreal

Nuttall

North-Central Texas Field

By George R. Kelley

Big Lake Co.'s No. 18 increases to 8,000 bbls., largest in Reagan County. Indications field may reach 100,000 bbls. daily. Texon Oil & Land Co.'s No. 5 makes 2,980 bbls. Archer County has more failures than producers. New development in old Ranger Field. Wilbarger test attracts.

FORT WORTH, Texas, April 20.—Reagan County supplied the sensation of the week in the North Texas oil fields, in the Big Lake Oil Co.'s No. 18 University, reported last week as making 1,500 bbls. Early this week it was drilled one foot farther into the sand and responded with a flush flow of 300 bbls. an hour. It now has a total depth of 2,889 feet and is still only four feet in the pay formation.

Late in the week indications were the well was gradually drilling itself in, at least the production was drpidly increasing. By the middle of the week the flow had gone to nearly 330 bbls. an hour and by the latter part of the week the flow from the well was considerably above 8,000 bbls. This is by far the largest producer ever drilled in Reagan County and has nearly three times the flush production of the next largest producer which made slightly more than 3,000 bbls.

The new well has no particular significance in broadening the producing area. It is well within proven territory and was expected to be a large producer, provided it missed the big gas sands that have been encountered in some of the other wells. Number 18 did not encounter any of the heavy gas sands. The well is in the middle of the southeast 40 acres of Section 25, Block 9, University lands.

The bringing in of this well and the Texon Oil & Land Co.'s No. 9 Group 1, University, reported as a near completion last week, will no doubt boost the production of the Big Lake Field to somewhere in the neighborhood of 23,000 at 24,000 bbls. daily. The daily output aside from these two ne wwells, is slightly more than 14,000 bbls.

In addition Reagan County recorded another good completioin, the Texon Oil & Land Co.'s No. 5 Group 1, University, which is producing from the regulation depth and has a flush flow of 2,980 bbls. This well is also in proven territory.

There is some probability the Big Lake's No. 18 would be a much larger well if it were drilled farther into the sand. Some of the best producers have as much as 15 feet of the pay, while No. 18 has only four feet to date. Indications are it will not be drilled any deeper at least at present. Geological opinion is it is on or very near the peak of the structure in the present proven producing area of the Big Lake Pool. A north and south line of wells to the west of the new producer, which are also being drilled by the Big Lake Oil Co. may now be expected to be almost if not fully as large producers as No. 18.

Indications are that the production of the Big Lake Field can probably be increased very early to 100,000 bbls. daily, depending mainly on the length of time it requires for the completion of the Humble's 8-inch pipe line. The Texon company and the Big Lake together have approximately 25 wells drilling. Practically every one of these could be completed within 60 days if there were sufficient pipe line facilities. Of course, the condition of the oil market might have some bearing on the early completion of these wells, all being within what is regarded as sure producing area.

There was only a small change in production in North Texas during the week, the change being a gain of 102 bbls. over the average daily runs for the previous week. Total for the week is 147,397 bbls., compared with a total for the week before of 147,295 bbls. Young County showed a gain of 740 bbls., Wilbarger County a gain of 355 bbls., and Reagan County an increase of 230 bbls., while Callahan County gained nearly 200 bbls. But there were losses recorded in Burkburnett, Electra and Stephens County that offset the larger part of these increases.

The district showed a rather heavy loss in the number of completions for the week compared with the previous week. This week there were a total of 86 completions against a total of 99 for the week before. Of this week's completions only 48 were oil producers with a total new production amounting to 8,249 bbls. This compares with 55 producers the previous week with new production of 8,651 bbls. There were 36 dry holes this week and two gas wells making a total of 12,500,000 feet of gas daily.

Archer County Failures

In comparison with its recent performances, Archer County made a rather poor showing this week. While it led in the number of completions, the majority of these were failures and new production in the county amounted to only 585 bbls. This record may be regarded as supporting the opinion expressed two or three weeks ago that Archer County had probably passed its peak of production from the present existing pools. Archer County recorded 26 completions, only 10 of which were producers, 16 being failures.

Young County had a much better record. There were 18 completions, 13 producers, 5 failures. The 13 new oil wells provided new production of 3,040 bbls. Wilbarger County had 10 completions, 9 producers and 1 failure. Now production was 867 bbl.s

For a semi-wildcat district Brown County made a fairly good report. There were four completions, three producers with new production of 230 bbls. All were in the shallow sand area of the northern part of the county. Reagan County had two completions, one a producer making 2,980 bbls., and the other a dry hole.

New development is starting on two of the old leases prominent in the early history of the Ranger Field, five or six years ago. The Sinclair Oil & Gas Co. has made the location for No. 8 on on the J. H. Davis lease northwest of Ranger, just over the line in southern Stephens County. This was among the first leases developed by Sinclair during the early days. The Prairie Oil & Gas Co. is making preparations for drilling another well on its Roper lease, northwest of Ranger. This lease provided some sensation big lime wells of Ranger's early development. Some operators are taking this as an indication there is still a strong demand for high gravity oil such as produced in the old Ranger Field, and that the big companies prefer to drill in a known producing area, where there is a chance for probably only small production rather than take chances in new territory.

Wilbarger County Test

The success attained in Wilbarger County no doubt is responsible for a rather interesting test to be drilled by The Texas Co. 4 miles northwest of the town of Crowell, in north central Foard County, adjoining Wilbarger on the west. The geology on the location was worked out by Burton Hartley of Tulsa for Goldrick and Baker of Tulsa (Pennant Oil & Gas Co.). These people took up a block of 5,000 acres, then turned 2,500 acres of the block to The Texas Co. for a test to be drilled to 3,000 feet with cable tools. The location is on the McCoy land and it is said The Texas Co. will probably be on the lease by May 15. Several of the major companies are said to be checkerboarding acreage throughout this section of Foard County.

Callahan County Purchases

The purchase by The Texas Co. of three pieces of producing property in the shallow sand area of Callahan County is regarded as showing the importance with which the larger companies regard this shhallow production. During the week The Texas Co. purchased producing properties there to the value of about $550,000. The largest purchase was that of John Hooser, of Corsicana, Texas, for which Hooser was paid $375,000. Property purchased from Hooser consisted of a 40-acre lease on the T. J. Davis land in the Putnam Field, with 18 producing wells making an average daily production of approximately 900 bbls. This production is all settled. The Texas Co. also purchased producing properties in the Putnam Field from Goodloe and Duffy and from the Moutray Oil Corp. to the amount of $175,000. The Texas Co. has always been one of the foremost figures in the Putnam shallow field and these purchases make it undisputably the outstanding figure in the field.

The Empire Gas & Fuel Co. is reported to have purchased from Burton, Ruff and associates a one-half interest in 80 acres out of the W. T. Waggoner lands of Wilbarger County, for a cash consideration of $50,000. There is no production on the property, though there is one well now drilling. The property consists of a 40-acre lease in the southeast quarter of Section 49, H. & T. C. Railway survey, and a 40-acre lease out of southwest quarter of Section 38 of the same survey. The property is a mile east of the Levy wildcat recently completed on the Waggoner Ranch in Block 65.

PRODUCTION REPORT

For Week Ending April 16, 1925

Burkburnett	
Gulf Production Co.	675
Humble Oil & Ref. Co.	400
Magnolia Petroleum Co.	2,950
Panhandle Refining Co.	310
Prairie Oil & Gas Co.	15
Sinclair Oil & Gas Co.	15
Sun Oil Co.	150
The Texas Co.	515
Texhoma Oil & Ref. Co.	455
Miscellaneous	9,205
Total	14,690
Electra	
Empire Gulf & Fuel Co.	1,060
Gulf Production Co.	915
Humble Oil & Ref. Co.	105
Magnolia Petroleum Co.	3,900
Panhandle Refining Co.	65
The Texas Co.	3,670
Texhoma Oil & Ref. Co.	1,690
Miscellaneous	5,900
Total	17,305
Iowa Park	
Gulf Production Co.	40
Humble Oil & Ref. Co.	7
Magnolia Petroleum Co.	545
Panhandle Refining Co.	35
Texhoma Oil & Ref. Co.	66
Miscellaneous	3,473
Total	4,166
Archer County	
Empire Gas & Fuel Co.	545
Gulf Production Co.	3,606
Humble Oil & Ref. Co.	755
Magnolia Petroleum Co.	800
Panhandle Refining Co.	255
Prairie Oil & Gas Co.	925
Sun Oil Co.	245
The Texas Co.	2,310
Texhoma Oil & Ref. Co.	2,655
Miscellaneous	28,000
Total.	40,096
Petrolia	
Gulf Production Co.	207
The Texas Co.	65
Miscellaneous	265
Total	537
Stephens County	
Empire Gas & Fuel Co.	82
Gulf Production Co.	1,420
Humble Oil & Ref. Co.	835
Magnolia Petroleum Co.	555
Mid-Kansas Oil & Gas Co.	1,695
Prairie Oil & Gas Co.	710
Sinclair Oil & Gas Co.	105
Sun Oil Co.	270
The Texas Co.	1,580
Texas Pacific Coal & Oil Co.	1,005
Miscellaneous	7,665
Total	15,962
Ranger	
Gulf Production Co.	325
Humble Oil & Ref. Co.	50
Magnolia Petroleum Co.	615
Mid-Kansas Oil & Gas Co.	235
Panhandle Refining Co.	280
Prairie Oil & Gas Co.	515
Sinclair Oil & Gas Co.	385
The Texas Co.	237
T. & P. Coal & Oil Co.	870
Miscellaneous	3,047
Total	6,559
Morgan	
Empire Gas & Fuel Co.	55
The Texas Co.	110
Texhoma Oil & Ref. Co.	120
Miscellaneous	2,455
Total	2,740
Young County	
Gulf Production Co.	495
Humble Oil & Ref. Co.	4,320
Mid-Kansas Oil & Gas Co.	30
Panhandle Refining Co.	155
Prairie Oil & Gas Co.	10
Sinclair Oil & Gas Co.	450
The Texas Co.	1,905
Texhoma Oil & Ref. Co.	550
Miscellaneous	6,510
Total	10,425
Eastland-Comanche	
Humble Oil & Refining Co.	200
Magnolia Petroleum Co.	1,125
Mid-Kansas Oil & Gas Co.	245
Priarie Oil & Gas Co.	115
Sinclair Oil & Gas Co.	30
The Texas Co.	152
Texas Pacific Coal & Oil Co.	110
Miscellaneous	1,880
Total	3,857
Miscellaneous Pools	
Wilbarger County	6,470
Montague County	70
Jack County	20
Palo Pinto County	645
Brown County	1,260
Coleman County	70
Callahan County	3,927
Mitchell County	1,775
Reagan County	14,050
Scurry County	10
Carson County	1,895
Hutchinson County	675
Wheeler County	160
Gray County	55
Total	31,072
Total this week	147,397
Total last week	147,295
Gain	102

Completions, Wichita Coun

Texhoma Oil & Refining Co. and [illegible] No. 3 Bailey, making 27 bbls. at [illegible] feet; White and others' No. 1 Reilly, dry at 1,989 feet; Empire Gas & Fuel Co.'s No. 8 Pierce, 25 bbls. at 1,467 feet; No. 9 Pierce, 57 bbls. at 1,463 feet; Humble Oil & Refining Co.'s No. 17 Douglas, 15 bbls. at 1,998 feet; Magnolia Petroleum Co.'s No. 16 Maer, 90 bbls. at 1,762 feet; No. 43 Rio Bravo, 40 bbls. at 2,130 feet; Petroleum Production Co.'s No. 13 Maer, 225 bbls. at 1,768 feet.

Wilbarger County

Atlantic Oil Producing Co.'s No. 1 Waggoner, 125 bbls. at 1,430 feet; No. 2 Zipperle, 100 bbls. at 1,324 feet; Bridwell and others' No. 7 Stephens, 280 bbls. at 2,303 feet; Humble Oil & Refining Co.'s No. 6 Stephens, 12 bbls. at 1,960 feet; McCamey and others' No. 10 Sthephens, 75 bbls. at 1,336 feet; Priddy and others' No. 3 Castlebury, 40 bbls. at 1,318 feet; Ray and others' No. 3 Bond, 35 bbls. at 2,046 feet; No. 7 Bond, 100 bbls. at 2,332 feet; No. 8 Bond, 100 bbls. at 2,058 feet; Wood and others' No. 1 Streit, dry at 2,585 feet.

Archer County

Atlantic Producing Co.'s No. 2-C Parrish, dry at 1,642 feet; Burns and others' No. 1 Parrish, dry at 1,623 feet; Carter and others' No. 8-C White, dry at 1,652 feet; No. 1 Wilson, dry at 1,742 feet;

(Continued on Page 165)

For efficient heat exchange in absorption type gasoline plants

Note these other G-R Units for lower refining costs

G-R Vaneflo Gas Cooler

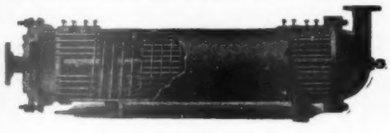
For cooling casinghead or natural gas. Can be used as inter-, after-, or pre-cooler in absorption and compression type natural gasoline plants. Has low pressure loss and exceptional efficiency.

G-R Gasoline Condenser

For condensing natural gasoline vapors in casinghead gasoline plants. Can also be used as a knockout box or fractionating tower control section with particularly close control of the end points.

G-R Twin Heat Exchanger

For the efficient interchange of heat between crude oil feed stock and still bottoms, cold water and hot oil, feed stock and hot still vapors, etc.

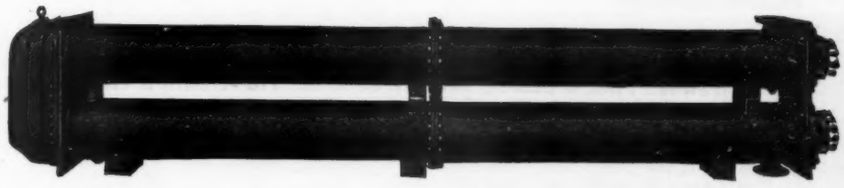


G-R Jacket Water Cooler

Uses any source of raw water to cool the jacket water from oil and gas engines and compressors. The famous Multiwhirl Cooler—over 2,000 in operation in every liquid cooling service.

G-R Sectional Condenser

For condensing hydrocarbon vapors and other vapors. Can be used either as a standard or reflux condenser. The sectional arrangement permits using as a condenser and heat exchanger in one set or to obtain a different cut from each section.



The G-R Mineral Seal Oil Heat Exchanger

is designed so that the saturated and unsaturated oils flow through the heater in opposite directions, resulting in maximum rate of heat exchange.

There are several other practical service advantages that also help to explain the rapidly increasing popularity of this exchanger. Because of its twin arrangement, it is exceptionally compact and easy to inspect, clean, and transport to new locations if desired. All oil connections are at the same end to simplify piping. The construction eliminates expansion strains and likelihood of leakage or breakage.

These advantages and the features of construction of the G-R Mineral Seal Oil Heat Exchanger are explained in leaflet which will be sent on request.

REG. U.S. PAT. OFF.

The Griscom-Russell Company

94 West Street, New York

Philadelphia	Chicago	St. Louis	San Francisco
Boston	Cleveland	Kansas City	Los Angeles
Rochester	Detroit	Charlotte	Seattle
Pittsburgh	Indianapolis	New Orleans	Denver
Columbus	Milwaukee	Houston	Salt Lake City
	Minneapolis	Dallas	Tulsa

For Canada: Riley Engineering and Supply Co., Ltd., Toronto

Griscom-Russell

Heat Transfer Apparatus

Send the Coupon

THE GRISCOM-RUSSELL COMPANY
94 West Street, New York
Please send information on:
☐ G-R Vaneflo Gas Cooler
☐ G-R Gasoline Condenser
☐ G-R Mineral Seal Oil Heat Exchanger
☐ G-R Sectional Condenser
☐ G-R Jacket Water Cooler
☐ G-R Twin Heat Exchanger

Name .....
Company .....
Address .....

C&GJ—4-23-25

Oklahoma Field Operations

By J. L. Dwyer

Bement well in Pawnee County displays "Finnegan" tactics. Output Friday 765 bbls. and on Sunday 15 bbls. W. R. Ramsey again gets big well in Wewoka Pool, it making 140 bbls. an hour. Herbert Oil & Gas Co. has important showing in Kay County test. Wilcox wildcat being swabbed.

The characteristics of the famous Finnegan with his Off-Again On-Again tale, were displayed last week by the new well of the Bement Oil Co., in Pawnee County. The well, located in the SE cor. SW SE, Section 30-23-5, had an initial production of about 600 bbls. from sand topped at 2,762 feet; quit flowing after two days producing and after the lost tools were fished out the well remained dead until a bridge was knocked out by the tools. With the hole cleaned, the well once more started to flow at the rate of 40 bbls. an hour, which gradually decreased. The gauge on Saturday morning showed a daily production for Friday of 765 bbls. Saturday evening the well stopped flowing again. The Bement Co. is installing a large separator to take care of the heavy flow of gas, and is laying two large flow lines before attempting to run the tools in again.

The Bement well is standing full of oil, and occasionally slops over. For Sunday, the well made 15 bbls. When the tools are run in, it is the intention of the Bement Co. to swab the well.

North of the Bement well, the well of Haley-Garber & Hulsey, SW cor. NW NE, Section 5-23-5, had a show of oil in the sand found at 3,184-3,200 feet. It was passed up and the well is drilling at 3,271 feet.

In Kay County, the Herbert Oil & Gas Co. has a showing that is rather important as it was not found in the other wells of this territory. It is in the SW cor. SE SW, Section 5-28-1w, and was in sand from 1,683-87 feet, and estimated at 10 bbls. The well is now drilling at 1,781 feet.

In the Hubbard Pool, two new completions worthy of attention are Prairie Oil & Gas Co.'s No. 3 Smith, NW NE SE, Section 1-26-2w, which made 500 bbls. from sand at 2,520-34 feet; and Marland Oil Co.'s No. 6 North, NE cor. NE, Section 12-26-2w, which is making 250 bbls. from sand at 2,536-38 feet.

Wewoka in the Limelight

Wewoka was brought from a state of lethargy once more by W. R. Ramsey, one of the pioneers of the pool, who deepened No. 2 Salinda and made a very large well of it as recorded in last week's issue of The Oil and Gas Journal, and he again repeated the performance this week by drilling in No. 3 Salinda, NW cor. SE, Section 31-8-8, a quarter mile west of No. 2. Sand was topped at 3,260 feet; first oil at 3,268 feet, still drilling in sand at 3,286 feet and producing 140 bbls. an hour. This well is a quarter mile west and a quarter mile north of production.

Cromwell showed the largest increase in production of any Oklahoma Pool a week ago, largely due to the development of the north end of the field. The Sinclair Oil & Gas Co.'s No. 3 Fixico is the only big completion to be recorded in the southern portion. This well, SW cor. NE NE, Section 5-10-8, had sand at 3,417-59 feet and is making 47 bbls. an hour.

The Papoose Pool showed a small increase in production due to completions of inside locations.

The new wildcat well of the H. F. Wilcox Oil Co., SW cor. NW SW, Section 8-12-5, has made a total production of 130 bbls. to date from sand at 4,220-29 feet. The production is by way of the swab, and the well is being swabbed 600 feet off bottom.

In the Donahoe Pool, the Comar Oil Co.'s well, NW cor. SE SE, Section 22-23-4, has 8,000,000 feet of gas in the top of the Bartlesville sand at 3,750-53 feet, and will be watched closely. The Black Gold Oil Co. and the Prairie Oil & Gas Co. have failures in this territory. The Comar's new well is a quarter mile southeast of the discovery well.

The average daily production of Oklahoma fields for the week anding April 15, was as follows:

Wewoka

Company—	Wells	Prod.
Berry Pet. Co.	1	536
Boggs & Sykes	7	1,014
Dixie Oil Co.	35	2,483
Gypsy Oil Co.	2	38
Homaokla Oil Co.	2	40
Indept. O. & G. Co. et. al.	8	202
Lewis & Clark	1	41
Magnolia Pet. Co.	25	1,585
Prod. & Ref.	18	1,847
W. R. Ramsey	7	2,432
Roxana Pet. Corp.	3	432
Shaffer O. & Ref. Co.	7	1,502
Sinclair O. & G. Co.	1	10
Total	117	12,162

South Weleetka

Company—	Wells	Prod.
Magnolia Pet. Co.	4	120
Mid Kans Oil & Gas Co.	8	349
Tidal Osage Oil Co.	13	1,335
Total	25	1,804

Papoose

Company—	Wells	Prod.
Amerada Petr. Co.	1	160
Arkansas Fuel Oil Co.	1	3
Berry Petr. Co.	3	149
Carter Oil Co.	5	1,853
Midco Petr. Corp.	13	4,069
Foster Inv. Co.	6	326
Gilcrease Oil Co.	3	63
Gilcrease Oil Co. and Papoose Oil Co.	1	4
Gypsy Oil Co.	3	462
Indept. Oil & Gas	10	2,539
Indept Oil & Gas and Atlantic Oil Prod. Co.	1	200
Indian Territory Illuminating Oil Co.	4	715
Josey Oil Co.	2	385
Kingwood Oil Co.	10	1,346
Magnolia Oil Co.	2	34
Continental Oil Corp.	1	55
Papoose Oil Co.	12	872
Prairie Oil & Gas Co.	6	1,068
Phillips Pet. Co.	1	288
Robinson and Amerada Pet. Co.	5	1,306
Skelly Oil Co.	1	162
T. B. Slick and others	33	5,757
T. B. Slick and Gypsy Oil Co.	4	1,253
Transcontinental Oil Co.	11	2,209
H. F. Wilcox Oil & Gas	1	80
Mid-West & Gulf Co.	1	214
Total	141	25,572

Cromwell

Company	Wells	Prod.
Amerada Petr. Co.	10	457
Berry Petr. Co.	1	36
Burke-Griles	4	245
Carter Oil Co.	39	5,596
Carter Oil and Gardner Pet. Co.	8	68
Central Natl. Pet. Co.	8	765
Continental Oil	3	192
Midco Pet. Corp.	32	1,906
Empire Gas & Fuel	4	292
Gilliland Oil Co.	2	89
Gypsy Oil Co.	45	5,813
Gypsy Oil Co. and Laurel Co.	4	1,448
T. B. Hoffer and others	3	37
Holmes & Jarvis	1	3
Houston Oil & Gas Co.	2	363
Indept. Oil & Gas Co.	8	85
Kingwood Oil Co. and Sinclair Oil & Gas Co.	4	98
McMann Oil Co.	13	1,605
Mid Kans Oil & Gas Co.	4	251
Prairie O. & G. Co.	8	892
Pure Oil Co.	12	135
Roxana Pet. Co.	22	2,354
Shaffer Oil & Ref. Co.	8	371
Sinclair O. & G. Co. and Gardner Pet. Co.	4	2,037
Sinclair O. & G. Co. and Gard-		
Snowden & McSweeney	3	571
Southwestern Pet. Co.	17	5,891
Superior Oil Co.	6	232
Tidal-Osage Oil Co.	11	1,380
H. F. Wilcox Oil & Gas	7	111
Waite Phillips Pet. Co.	13	940
White Eagle Oil & Ref. Co.	1	81
Total	331	39,723

Tonkawa

Company—	Wells	Prod.
Amerada Petr. Corp.	39	5,737
Blackwell Oil & Gas	34	2,057
Carter Oil Co.	4	138
Champlin Refining Co.	1	10
Champlin Ref. Co. and Twin State Oil Co.	1	12
Comar Oil Co.	344	26,832
Cosden Oil & Gas and Marland Oil Co.	16	184
Gypsy Oil Co.	59	13,004
Healdton Oil & Gas	37	1,318
Wentz Oil Corp.	50	14,570
McMann Oil Corp.	2	573
Pennok Oil Co.	32	2,414
Phillips Pet. Co.	3	175
Prairie Oil & Gas Co.	12	513
Sinclair Oil & Gas Co.	1	10
T. B. Slick and Comar Oil Co.	35	3,238
Southwestern Pet. Co.	15	520
The Texas Co.	6	1,357
White Eagle Oil & Ref.	7	133
Total	688	72,795

Tonkawa Deep Sand

Company—	Wells	Prod.
Amerada Pet. Co.	8	4,809
Pennok Oil Co.	7	1,492
Comar Oil Co.	35	7,483
Gypsy Oil Co.	16	10,092
T. B. Slick	7	1,609
Blackwell Oil & Gas Co.	4	1,133
Wentz Oil Corp.	8	13,232
The Texas Co.	2	1,494
Phillips Pet. Co.	1	150
McMann Oil Corp.	1	573
Total	89	42,067

Burbank

Company—	Wells	Prod.
Lewis Oil Co.	2	244
Carter Oil Co.	252	8,261
Midco Pet. Co.	106	2,185
Comar Oil Co.	7	130
Devonian Oil Co.	16	216
Gypsy Oil Co.	196	4,116
Kewanee O. & G. Co.	25	401
Laurel O. & G. Co.	16	224
Lorraine Pet. Co.	15	132
Midland Oil Co.	37	1,062
Mid Kanas O. & G. Co.	40	1,340
Peters & Oliphant	2	145
Phillips Pet. Co.	143	15,845
Phillips Pet. Co. and Delmar Oil Co.	16	1,291
Phillips Pet. Co. and Skelly Oil Co.	176	4,170
Prairie O. & G. Co.	106	2,211
Prod. & Ref. Co.	29	430
Roxana Pet. Corp.	55	626
Simons & Moore	29	280
Sinclair O. & G. Co.	145	2,562
Skelly Oil Co.	23	374
Tidal-Osage Oil Co.	43	694
The Texas Co.	12	567
Twin State Oil Co.	24	832
Total	1,515	48,837

Kay County Extensions

Company—	Wells	Prod.
George Bole	3	259
Carter Oil Co.	11	1,088
Comar Oil Co.	19	1,067
Mid Co. Pet. Co.	16	1,148
Gypsy Oil Co.	19	381
Laurel O. & G. Co.	5	235
Mid Kans O. & G. Co.	10	800
Phillips Pet. Co.	31	3,340
Prairie O. & G. Co.	4	203
Pure Oil Co.	5	350
Roxana Pet. Co.	8	378
Dye & Tomlinson	8	438
Skelly Oil Co. and Phillips Pet. Co.	20	407
Sinclair O. & G. Co.	5	231
The Texas Co.	16	253
Twin State Oil Co.	15	1,125
Total	195	11,703

Holdenville District

Company—	Pipe Line Runs
Midco Pet Co.	3,907
Gulf P. L. Co.	8,173
Magnolia Pet. Co.	7,359
Okla. P. L. Co.	14,836
Ozark P. L. Co.	7,544
Prairie O. & G. Co.	15,923
Prod. & Ref. Co.	1,304
Shaffer O. & Ref.	1,873
Sinclair O. & G. Co.	14,433
Empire P. L. Co.	2,474
Pure P. L. Co.	388
Consd. P. L. Co.	875
Storage	37
Total	79,762

Yeager Pool

Company—	Wells	Prod.
Dixie Oil Co.	1	453

Okmulgee District

North of Beggs, Clover and others are spudding No. 3 Grant, NW cor. SW NW, Section 3-15-11.

West of Beggs, R. W. Kellough is drilling at 500 feet in No. 3 Barnett, CWL SW SE, Section 29-15-11. Misener and others have spudded No. 5 Gooden, CNL NE SE, Section 32-15-11. The Red Bank Oil Co. is drilling at 350 feet in No. 3 Hawkins, NE cor. NE, Section 36-15-11. Olean Petroleum Co. is spudding No. 2 Haines, SE cor. SW SE, Section 11-15-12. King & Jackson have spudded No. 1 Snakeye, SE cor. NW, Section 25-14-12.

The Harris-Hayes Oil Co. is drilling at 515 feet in No. 1, SE cor. SW NW, Section 20-15-13. Hutchinson and others' No. 2 Lee, NW cor. SE SW, Section 36-15-16 is drilling at 1,150 feet.

West of Okmulgee

The Magnolia Petroleum Co. lost the hole and skidded the rig in No. 1 Kanard, SE cor. SW SW, Section 28-13-12. The new well is drilling at 900 feet.

A. B. Ice and others' No. 4 Murrell, SE cor. NW NW, Section 28-13-11 is drilling at 1,965 feet.

The Superior Oil Corp. and others' No. 3 Vore, CSL SE NW, Section 34-16-12 made 100 bbls. natural from sand at 2,148-88 feet, was shot with 100 quarts and made 25 bbls. Sheridan Oil Co. and Turner's No. 2-A SW cor. SE, Section 35-16-12, had the Dutcher sand at 2,012-44 feet. Pay was at 2,040 feet, and the well made 75 bbls. natural.

The Eastern Oil Co.'s No. 10 Jefferson, C NE NE NW, Section 32-15-11 is dry and abandoned at 2,530 feet.

East of Okmulgee J. G. Haas and others' No. 10 Colbert, C NE NW, Section 15-14-14, is making 50 bbls. from sand at 1,523-40 feet.

South of Youngstown Mount Fork Oil Co. and H. E. Clark's No. 2-A Roberts, CSL SE NW SW, Section 28-13-11 is drilling at 2,650 feet. The Magnolia Petroleum Co.'s No. 1 Kanard, SE cor. SW SW, Section 28-13-11 is dry and abandoned at 1,640 feet, and the rig will be skidded 50 feet north.

Tiger Flats

Independent Oil & Gas Co. and C. L. McMahon's No. 1 Carolina, NE cor. SW SW, Section 33-12-11, has been completed as a 35,000,000 foot gas well, sand at 3,020-48 feet.

The Aztec Oil Co. has a rig on the ground for No. 1 Rentie, NW cor. SW SW, Section 31-12-12. Aztec Oil Co. also has a rig on the ground for No. 4 Rentie, NW cor. NE SW, Section 31-12-12. Simms Oil Co. is building the rig for No. 1-B Rentie, NW cor. SE NW, Section 31-12-12. Simms Oil Co. is building the rig for No. 2-A Rentie, SW cor. SE NW, Section 31-12-12. Simms Oil Co. has a rig on the ground for No. 3-A Rentie, NW cor. SW NW, Section 31-12-12.

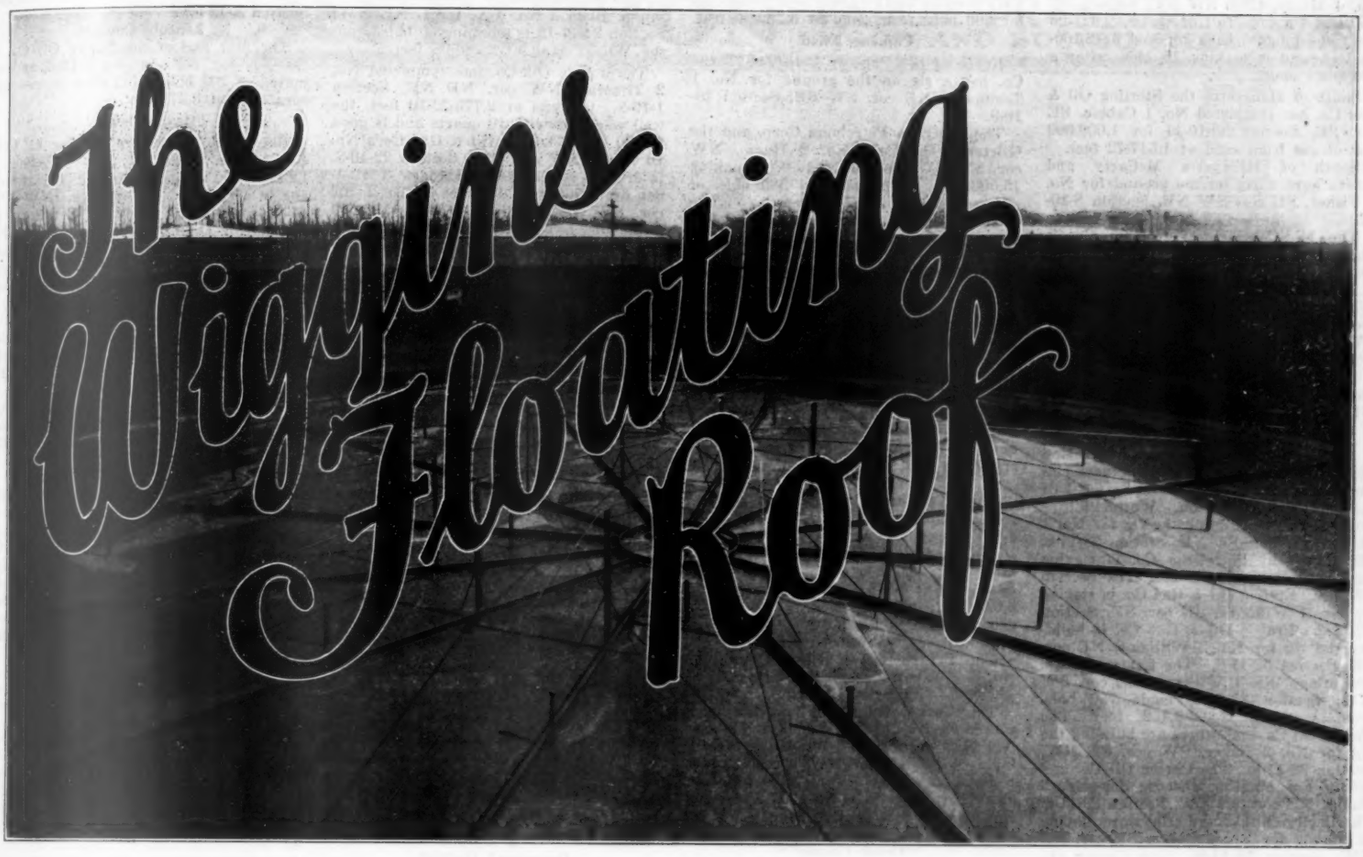
C. M. Roberts is drilling No. 3-A Grayson, C NE SE NW, Section 17-13-13 at 800 feet. This is a twin well.

Near Eram C. E. Campbell and others have completed No. 2 Sampson, NE cor. SW NW, Section 30-15-13. Sand was 705-20 feet and the well is making 2,000,000 feet of gas.

The Choctaw Oil & Refining Co. has completed No. 5 Roland, CEL SE SE, Section 13-16-12. Sand at 1,033-42 feet, was shot with 100 quarts and is making 10 bbls. E. H. Bradley's No. 1-A Squires, SW cor. SE SE, Section 1-16-12, is dry and abandoned at 2,362 feet. C. E. Suppes' No. 1, NW cor. SE SW, Section 1-16-12 is dry and abandoned at 2,398 feet. The Sheridan Oil Co.'s No. 1 Jones, SE cor. NW NE, Section 15-16-12, is drilling at 1,500 feet. The Oklahoma Eastern Oil Co. has completed No. 10 Tiger, CEL SW SW, Section 24-16-12, sand at 2,231-38 feet. It is producing 75 bbls. after a 10-quart shot. The Oklahoma Eastern Oil Co.'s No. 2 Tiger, NE cor. SW, Section 24-16-12, is dry and abandoned at 2,311 feet.

The Sheldon Oil Co.'s No. 1-A Coleman, SE cor. SW, Section 27-16-12, is swabbing 56 bbls. from sand at 2,152-62 feet; there is some water coming from behind the 8-inch casing. The Shaffer Oil & Refining Co.'s No. 1 Coleman, SW cor. SE, Section 27-16-12 is dry and abandoned at 2,637 feet. The Hope Petroleum Co. is drilling at 350 feet in No. 1 Wills, NW cor. SE SE, Section 28-16-12. The Superior Oil Corp. has the rig built for No. 5 Vore, CSL SE SE NW, Section 34-16-12. The Sheldon Oil Co. and Superior Oil Corp. have spudded No. 5 Vore, C NE NW, Section 34-16-12.

The Superior Oil Corp. and others'



Will Operate Successfully on Your Property in Any Climate or Weather

Last winter was severe.

But neither snow, ice, sleet or rain stopped the Wiggins Floating Roofs that were operating in the North—even at Olean, New York, which is near the Canadian line.

This performance assures you that the Wiggins roofs you will install will operate successfully. You no doubt have been impressed with the evaporation savings the roofs have made and the advantages of the roof in fire protection. Now you can be satisfied that the roofs are perfectly practicable from an operating standpoint.

On Your Property

At your refinery, pipe line station or tank farm the Wiggins Roof will do three things—each of which increases your profits:

1. Practically eliminate evaporation.
2. Practically eliminate fire hazard.
3. Stop roof corrosion.

Evaporation savings are so great that a run-down tank, for example, will pay for a Wiggins Roof in about three months.

Fire from sparks, lightning and similar hazards is next to impossible.

The deterioration that gases cause on the underside of canopy roofs is entirely eliminated because the Wiggins Roof is constantly in contact with the oil.

Any Diameters

We are prepared to build roofs in all diameters. We are prepared to furnish the roofs complete, with gauge hatch, vent, ladder, gauging platform, rubbing bars, drainage system, etc.

Wire our nearest office for quotations upon the diameters you require, giving us location of each.

Wire or Write for Quotations

612

CHICAGO BRIDGE & IRON WORKS

CHICAGO 2128 Old Colony Building
NEW YORK 3147 Hudson Terminal
DALLAS Building 1641 Praetorian
ATLANTA 1054 Healey Building
SAN FRANCISCO 1054 Rialto Building

No. 4 Morey, CNL SW NE, Section 34-16-12 had a hole full of water, 2,621-26 feet, was plugged back to sand at 2,160-88 feet, and is making 15 bbls. after a 120-quart shot.

South of Henryetta the Sterling Oil & Gas Co. has completed No. 1 Cabbie, SE cor. SE, Section 33-10-11 for 1,000,000 feet of gas from sand at 1,547-72 feet.

South of Henryetta McCarty and others have a rig on the ground for No. 1 Fisher, SE cor. SW NE, Section 8-10-12.

The Mid-Continent Petroleum Co. is building the rig for No. 1, SE cor. NE, Section 3-11-11.

In the old Tiger Mountain gas field, the Wooster Oil Co. completed a 3,000,000-foot gas well in No. 4 Bruner, CWL SW SW, Section 11-11-13. Sand was at 2,-281-87 feet.

South of Weleetka Gibson & Zanhiser have a rig for No. 1 Harjo, SW cor. NE NE, Section 4-9-11.

Cromwell

As the result of the north extension of Cromwell, there are several new rigs announced in Section 28-11-8, one-half mile north of production. Waite Phillips and others are building the rig for No. 1 Baker, SW cor. SE NE, Section 28-11-8. Mid-Continent Petroleum Co. is rigging up No. 1 Roberts, SE cor. NE, Section 32-11-8. Prairie Oil & Gas Co. is rigging up No. 1 Williams, SE cor. SE, Section 32-11-8. Prairie Oil & Gas Co. is building the rig for No. 2 Williams, NE cor. SE, Section 32-11-8. The Carter Oil Co. and others' No. 1 Williams, SE cor. SW NW, Section 33-11-8, made 756 bbls. from sand at 3,396-3,452 feet. The Carter Oil Co. and others are building the rig for No. 2 Baker, SW cor. SE NW, Section 33-11-8. The Carter Oil Co. and others are building the rig for No. 3 Baker, NE cor. SE NW, Section 33-11-8. The Carter Oil Co. and others are moving in the rig for No. 4 Baker, SE cor. NE NW, Section 33-11-8. The Carter Oil Co. and others are building the rig for No. 2 Williams, SW cor. NW, Section 33-11-8.

The Mutual Oil Co. is cleaning out No. 7 Pierce, SE cor. NW SE, Section 33-11-8 at 2,525 feet. The Mutual Oil Co. is skidding the rig on No. 8 Pierce, NE cor. NW SE, Section 33-11-8. The Mutual Oil Co.'s No. 6 Pierce, NW cor. SE, Section 33-11-8 is drilling at 1,600 feet. The Sinclair Oil & Gas Co. and the Houston Oil Co. are building the rig for No. 1 Hill, SW cor. NW NE, Section 33-11-8. The Sinclair-Houston companies have a rig on the ground for No. 2 Hill, SE cor. NW NE, Section 33-11-8. The Sinclair Oil & Gas Co. is drilling ahead in No. 5 Pierce, NW cor. NE SE, Section 33-11-8, the well is making 35 bbls. an hour from sand at 3,361-3,409 feet. The Sinclair Oil & Gas Co. has completed No. 6 Pierce, NE cor. SE, Section 33-11-8. The well first swabbed 50 bbls. from sand at 3,385-3,425 feet, was first shot with 15 quarts, second shot with 20 quarts, which produced 993 bbls.

The Mid-Continent Petroleum Co. and Waite Phillips No. 2 Brown, NE cor. SW, Section 33-11-8, made 20 bbls. an hour from sand at 3,326-3,438 feet. Mid-Continent Petroleum Co.-Phillips are building the rig for No. 3 Brown, NW cor. NE SW, Section 33-11-8. Same companies are building the rig for No. 4 Brown, NE cor. NW SW, Section 33-11-8.

Mid-Continent Petroleum Co. and Waite Phillips are building the rig for No. 5 Brown, NW cor. SW, Section 33-11-8. Mid-Continent Petroleum Co. and Waite Phillips are building the rig for No. 6 Brown, SW cor. NW SW, Section 33-11-8.

The McMann Oil Co. has completed No. 2, NW cor. SE SW, Section 34-11-8, which made 750 bbls. from sand at 3,366-98 feet. The Sinclair Oil & Gas Co.-Gardner Petroleum Co.'s No. 2 Hill, SE cor. SW SW, Section 34-11-8, has been completed for 728 bbls. from sand at 3,352-90 feet. Sinclair-Gardner No. 5 Hill, SW cor. SW SW, Section 34-11-8 made 20 bbls. an hour from sand at 3,351-57 feet, and then lost the tools. They are now fishing for the lost string. The Sinclair Oil & Gas Co.-Gardner Petroleum Co.'s No. 7 Hill, SE cor. NW SW, Section 34-11-8, has been completed for 500 bbls. from sand at 3,362-92 feet.

Papoose Field

North of the Papoose Pool The Texas Co. has a rig on the ground for No. 1 Tecumseh, NE cor. SW SE, Section 16-10-9.

The Amerada Petroleum Corp. and the Gilcrease Oil Co.'s No. 2 Harjo, NW cor. SW SW, Section 36-10-9, is making 15,000,000 feet of gas and 585 bbls. of oil from sand at 3,357-78 feet.

The Josey Oil Co. and the Margay Oil Co. are building the rig for No. 3 Arbor, SE cor. SW NW, Section 1-9-9. The Indian Territory Illuminating Oil Co. has built the rig for No. 3 Anderson, SW cor. NW SW, Section 1-9-9.

The Minnehoma Oil Co.'s No. 1 Cain topped sand at 3,310 feet, and had a show of gas. They are now pulling the big pipe. The location is SW cor. NW NE, Section 1-9-9. The Indian Territory Illuminating Oil Co.'s No. 1 Charles, SW cor. NW SW, Section 19-9-9 topped sand at 3,390 feet, had a show of gas and are trying to mud off to fish out tools.

Seminole County

The Superior Oil Corp. has spudded No. 1 Johnson, SE cor. NE, Section 31-8-6.

Holmes & Jarvis have completed No. 1 Hill, NE cor. SE NE, Section 7-9-8. Sand was at 3,275-3,302 feet, total depth 3,620 feet, plugged back. The well is good for 120 bbls. natural.

Wewoka

The Prairie Oil & Gas Co. spudded No. 8, SW cor. SE, Section 31-8-8.

Yeager District

The Carter Oil Co. is moving in a rotary rig for No. 2 Alexander, NW cor. NE NE, Section 19-8-10. J. S. McMillan's No. 1 Harjo, NW cor. NE NE, Section 25-8-9, is drilling at 1,100 feet. The Dixie Oil Co.'s No. 1-B Diamond, NW cor. NE SE, Section 18-8-10 is a rig on the ground.

Creek County

The Gled Oil Co.'s No. 2 Lewis, NE cor. SE, Section 14-19-8, is shut down at 405 feet. The Gled Oil Co.'s No. 3 Lewis is a new rig in the CEL SE SE, Section 14-19-8. The Midwest & Gulf Co. has completed No. 1 Murrell, SW cor. NE, Section 17-19-9 for a 5-bbl. well, sand at 1,217-26 feet.

The Sinclair Oil & Gas Co.'s No. 8 Bruner, SE cor. NE SE, Section 33-17-7 is dry and abandoned at 1,475 feet. The rig is being skidded 20 feet east. Thompson & Black's No. 1-A, CWL NE NW, Section 24-17-12 is pumping 50 bbls. from the Wilcox sand at 2,286-98 feet.

The Jomac Oil Co. has completed No. 2 Timothy, NW cor. NE NE, Section 1-16-8. Oil was at 2,775-2,810 feet, the well was shot with 10 quarts and is good for 20 bbls. Laurel Oil & Gas Co.'s No. 10 Knoll, SW cor. SW, Section 22-16-8, is drilling at 514 feet. Madden & Madden are drilling at 413 feet in No. 2, SE cor. SW SW, Section 13-17-8. Madden & Madden have a rig up for No. 3, NW cor. SE SE, Section 13-17-8. The Aztec Oil Co. is rigging up for No. 3, NW cor. SE SE, Section 14-17-8. Roxana Petroleum Corp. and Wolverine Oil Co.'s No. 1 Tucker, SW cor. NE SW, Section 18-17-8, had a well good for 120 bbls. natural in sand at 2,515-30 feet; the 6-inch casing is being run at 2,515 feet. The Savoy Oil Co.'s No. 6 Johnson, SW cor. NW NE, Section 23-17-8 is drilling at 650 feet. The Lima Oil Co.'s No. 4 Green, NW cor. NE NW, Section 24-17-8 is drilling at 300 feet.

T. B. Slick and others' No. 1-A Alec is drilling at 250 feet. Bu-Vi-Bar Petroleum Co.'s No. 1 Fellows, C NW SE, Section 5-17-9, is drilling at 100 feet. Bu-Vi-Bar Petroleum Co.'s No. 1 Manley, NE cor. SW, Section 25-17-9, is drilling at 300 feet. Dumar Oil Co. and others have a rig up for No. 1 Ware, NW cor. NE, Section 29-17-9. The Pure Oil Co. has spudded No. 1 Roberts, SW cor. SW, Section 30-17-9. The Texas & Pacific Co.'s No. 2 Barnett, CWL NE SE, Section 6-16-9, is drilling at 300 feet. Lewis Emery, Jr. & Sons, have spudded No. 5 Jacobs, SW cor. NW NE, Section 21-16-9. The Transcontinental Oil Co.'s No. 16 Sharper, CEL, NW SE, Section 27-16-9, is a rig.

The Oklahoma Natural Gas Co. has built the rig for No. 1-A Emarthla, NW cor. SE, Section 6-15-7.

Davenport District

The Magnolia Petroleum Co. has a rig on the ground for No. 2 Ely, SW cor. NW SW, Section 2-14-5. The Texas Co. is building a rotary rig for No. 2 Olson, NW cor. SW SW, Section 2-14-5. The Magnolia Petroleum Co. has completed No. 1, SW cor. NW NE, Section 3-14-5. Sand was at 3,397-3,456 feet, and the well made 624 bbls. natural. The Selby Oil & Gas Co. and Southwestern Petroleum Co. have built a rig, NE cor SE SE, Section 3-14-5.

Lincoln County

The new find of the Skelly Oil Co. in the NE cor. NE, Section 7-15-6, is estimated at 200 bbls. from sand topped and scratched at 3,378 feet.

Osage County

Skelton & Moore are drilling at 1,400 feet in No. 6, SE cor. NE SW, Section 32-26-12. Phillips Petroleum Co. is moving in a rig for No. 2, NE cor. NW NW, Section 10-25-10. Indian Territory Illuminating Oil Co.'s No. 4, NW cor. NE NW, Section 32-24-9 is dry and abandoned at 2,493 feet; this is an old well drilled deeper. Plymouth Petroleum Co.'s No. 1, NE cor. SW, Section 33-25-11, is drilling at 400 feet. Forty-Five Oil Co.'s No. 38, CEL SE SE NW NE, Section 5-25-12, had Bartlesville sand at 1,649-87 feet, first oil at 1,661 feet, shot with 100 quarts, swabbed 60 bbls.

Titus and others have a rig on the ground for No. 5, CNL NW NE, Section 12-24-11. Owen-Osage Co.'s No. 320, CSL SE NW NE, Section 32-24-12 is drilling at 1,638 feet. American Oil & Development Co.'s No. 18, CSL SE NE, Section 13-23-10, had Bartlesville sand at 1,838-64 feet, shot with 160 quarts and made 25 bbls. Owen-Osage Co.'s No. 319, C SW SW, Section 3-22-10, is drilling at 1,410 feet. Magnolia Petroleum Co.'s No. 3 Cowling, SE cor. SW SW, Section 9-20-6 is spudded. Westerly Oil Co.'s No. 6 Smith, SE cor. SW SW, Section 22-20-6 had sand at 3,003-70 feet, oil at 3,048 feet, is standing with 1,000 feet of oil in the hole. The Texas Co. has a rig on the ground for No. 3 Ellis, SE cor. NW NW, Section 27-20-6.

The Fidelity Oil Co. has completed No. 8, CWL NE, Section 16-21-12 for 25 bbls. in the Burgess sand at 1,589-1,605 feet. The Selby Oil & Gas Co. has completed No. 9, NE cor. NW NW, Section 16-21-12, in the Bartlesville sand at 1,328-45 feet, shot with 60 quarts, made 10 bbls. Elliot & Smith have drilled an old gas well deeper in No. 3, SE cor. NE NW, Section 30-21-12. Wilcox sand was found at 1,952-60 feet, total depth at 2,025 feet, the well made 15 bbls. Grimes & Gillespie have topped the big lime at 690 feet in No. 15 CWL SW SE, Section 31-21-12.

The Gray Oil Co. and others' No. 7, CWL SW NE NE, Section 28-20-11, has been completed for 50 bbls. Sand was at 2,280-2,330 feet, total depth 2,400 feet, water, plugged back to 2,389 feet. Winona Oil Co.'s No. 20, CWL SW SW NE, Section 9-20-12, had the second break at 1,930-35 feet, oil and water at 1,987 feet, total depth 1,989 feet. It made 30 bbls. of oil and 125 bbls. water on the swab.

The Oklahoma Eastern Oil Co. has spudded No. 1, SE cor. NW SE, Section 18-20-12.

The Phillips Petroleum Co. has a 50-bbl. natural well in No. 11, SW cor. NE NE, Section 18-27-6. Sand was topped at 2,946 feet, first oil at 2,952 feet, total depth 2,966 feet. The Prairie Oil & Gas Co.'s No. 1, NW cor. SW, Section 15-26-6, is rigging up. Prairie's No. 2 CWL NW SW, Section 15-26-6, is also rigging up.

The Carter Oil Co.'s No. 4, CEL SE NE NE, Section 20-26-6, is drilling at 770 feet. The Lewis Oil Co.'s No. 4, CWL NE NE, Section 21-26-6, drilling at 750 feet. The Lewis Oil Co.'s No. 5, SE cor. NW NE, Section 21-26-6, is drilling at 780 feet. The Carter Oil Co. has four wells in this section, 21-26-6; No. 5, CEL SE NE NW, drilling at 865 feet; No. 6, SW cor. NE NW, drilling at 100 feet; No. 7, SE cor. NW NW, drilling at 836 feet; No. 8, CWL SW NW NW, drilling at 496 feet.

The Skelly Oil Co. has completed No. 1, SW cor. SW, Section 2-27-5. Top of sand at 2,954 feet, first oil at 2,982 feet, total depth 3,056 feet. Plugged back to 3,000 feet, and shot with 80 quarts, it is swabbing 10 bbls. of oil. The Skelly Oil Co. has completed No. 2 CSL SE SW SW, Section 2-27-5, which is estimated at 30 bbls. Sand was at 2,978-3,018 feet, total depth 3,020 feet, the well was shot with 30 quarts. Phillips Petroleum Co. and Skelly Oil Co. have a rig on the

(Continued on Page 177)

Kansas Oil Field News

By J. L. Dwyer

In the Rainbow Bend territory, there is the usual number of failures drilled by operators in an attempt to duplicate the find of the Waite Phillips-Marland Oil Co.-Independent Oil & Gas Co., but all to no avail. The production of these companies in this pool hovers around the mark of 9,000 bbls. per day while they still have a world of acreage to drill up. The best production in their acreage would seem to be coming from the eastern end of their holdings.

There are a few new rigs announced in this territory, and that of the Roxana Petroleum Corp., in the SW cor. SE NW Section 21-33-2, would make it appear that the geologists have found some favorable looking territory over there, as the Roxana plays solely on geology.

The Teeter Pool, in Greenwood County, shows nine inside completions that hold the production of that pool up very nicely.

The following report on Kansas activities, shows a number of new wildcat rigs.

In the Teeter Pool, Greenwood County, the Skelly Oil Co. has completed No. 5 Teeter, SE cor. NW SW Section 15-23-9. Sand was 2,362-400 feet, the well was shot with 140 quarts and made 200 bbls. after the shot. The Skelly Oil Co. also completed No. 6 Teeter, SW cor. NE SW Section 15-23-9. This well had sand at 2,314-81 feet, was shot with 120 quarts and made 175 bbls. The Empire Gas & Fuel Co.'s No. 20 Teeter, SW cor. SE NE Section 16-23-9, had sand at 2,380-459 feet; was shot with 120 quarts and is good for 300 bbls.

The Greenland Oil Co. has a rig up for No. 4 Nuttie, NE cor. NE Section 16-23-9. The Greenland Oil Co.'s No. 2 Nuttie is swabbing 175 bbls. of oil from sand at 2,325-88 feet, and will be shot.

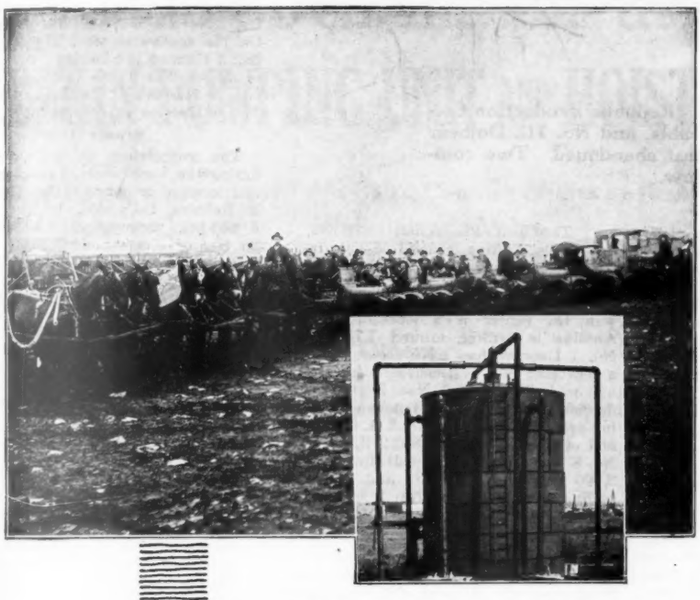
Murphy and others have completed No. 1 Green, NE cor. SW SW Section 2-23-9. Sand was 2,320-51 feet, and the well made 300 bbls. after a shot of 120 quarts.

The Greenland Oil Co. has spudded No. 3-A Hartley, NE cor. SW NE Section 2-23-9. The Transcontinental Oil Co. has completed No. 3, NE cor. SW Section 2-23-9. Half a million gas was found in top of sand at 2,304 feet. First oil at 2,332 feet, total depth 2,357 feet. The well made 150 bbls. after a shot of 120 quarts. Murphy and others have the rig built for No. 2 Nuttle, SW cor. SW SW Section 2-23-9.

The Skelly Oil Co. and others have completed No. 2, NE cor. NW Section 13-22-10. Sand was 2,165-202 feet, and the well made 240 bbls. natural. After a shot of 100 quarts it made 180 bbls. Skelly Oil Co. and others have a rig on the ground for No. 3 SE cor. NE NW Section 13-22-10. McGinnis and others have a rig on the ground for No. 3 CEL SW NE Section 13-22-10. The Theta Oil Co. is drilling at 300 feet in No. 3 Pixlee, SE cor. SW SE Section 8-22-10. The Phillips Petroleum Co. has a rig up for No. 1 Warrensburg, SE cor. SE SW Section 12-22-10. Pryor &

Continued on Page 158)

PERFECTION VAPOR PRESSURE TANKS
WOOD, AND BOLTED STEEL TANKS



Our fast-stepping crew at Burbank and a Perfection Vapor Pressure Tank they subsequently erected along with scores of others on other leases.

ARE YOU LOOKING FOR EQUIPMENT THAT WILL PAY DIVIDENDS?

FITTING words to describe our Perfection Vapor Pressure Flow Tank used as a gas separator are hard to find.

For our language hasn't any words that describes a piece of equipment that pays regular dividends instead of being listed as an expense.

This tank is so absurdly simple, too—fool proof we call it. It will handle wells making oil and gas in any quantity—big or little it makes no difference; it separates the oil and gas completely and makes available for lease fuel any quantity of gas you may want for that purpose. Surplus quantities can be sold to the nearest gasoline plant at the regular market price.

Of course it dispenses with a gas trap, thus saving a big extra expense.

How much will you save by this installation?

We have letters on file to show that many owners have saved literally thousands of dollars over and above the original cost.

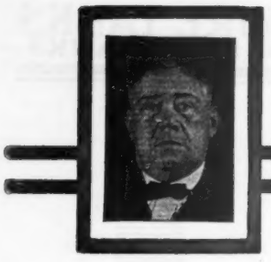
The branch office in your vicinity can tell you all about it. Better still the local manager can equip your lease in much less time than you can get word by mail from most other tank manufacturers.

Remember Daily Dividends Begin Immediately Upon Installation

Black Sivalls & Bryson
INC.

BARTLESVILLE ~ OKLAHOMA

Branch offices in all principal active fields



Gulf Coast Oil Operations

By P. L. McGreal

Increase of 2,389 bbls. in daily average production. Republic Production Co.-Houston Oil Co.'s No. 111 Dolbear flowing 1,000 bbls. and No. 112 Dolbear making 2,500 bbls. Fort Bend County's deepest test abandoned. Two completions in South Liberty with 3,000 bbls. initial flow.

HOUSTON, Tex., April 20.—The estimated daily average gross production in the Gulf Coast pools for the week ending April 18, is placed at 103,389 bbls., an increase of 1,549 bbls. over the week previous. The estimate for South Texas is 95,379 bbls., and for South Louisiana 8,010 bbls., an increase of 1,269 bbls. for South Texas and of 280 bbls. for South Louisiana.

The estimate for the Southwest fields is placed at 45,950 bbls. against 45,110 bbls. last week. The Jim Hogg County wells are off and the output for the new Lockhart (Lytton Springs) Field in Caldwell County, is placed at 3,600 bbls., largely potential for the reason that storage there is scarce and the wells are partially shut in. The flush wells are not holding up, as indicated by the Marland Oil Co.'s-Cranfil-Reynolds No. 1 Gomillion, credited with an initial flow of 1,800 bbls. at 1,275 feet when completed late last week. It is now credited with between 700 and 800 bbls. Another illustration that causes the talent to breathe easier is afforded by the Gulf Production Co.'s No. 2 Beaty, a 200-bbl. well and an offset to the company's No. 1 Beaty, originally credited with 400 bbls., and now making 250 bbls. The Mid-Kansas Oil & Gas Co.'s No. 1 Brewer is a 70-bbl. well at 1,260 feet. Storey & Le Fever's No. 2 Brewer is on the sand ready to drill in.

Daily Average Gross Production

The estimated daily average gross production for each district is as follows:

District—	Gross Bbls.
Batson	1,557
Blue Ridge	1,370
Big Creek	580
Barber Hill	105
Dayton	35
Damon Mound	1,160
Edgerly (La.)	990
Goose Creek	9,055
Humble	4,870
Hull	29,850
Jennings (La.)	1,030
Markham	135
Orange	13,477
Pierce Junction	615
Spindletop	1,285
Saratoga	1,700
Sour Lake	4,285
South Liberty	12,725
Vinton (La.)	5,905
Welsh-Anse La Bute (La.)	85
West Columbia	12,200
Lockport (La.)	235
Miscellaneous	140
Total	103,389
Southwest Fields—	
Luling	29,600
Laredo	4,130
Somerset	2,610
Calliham	290
Rockdale-Minerva	420
Jim Hogg County	5,300
Lockhart, Caldwell County	3,600
Total	45,950
Grand total for week	149,339
Grand total last week	146,950
Increase	2,389

A total of 28 wells were completed in the Gulf Coast region during the week, with 9,030 bbls. initial output, which however, slumped off rapidly. The dry holes number four, with one saltwater well. Twelve tests were bailing at the close of the week.

The Hull district shows seven wells completed with 3,975 bbls. new production, and the Orange district the same number of completions with 860 bbls. new production. Two wells were finished in the South Liberty Pool, with 3,000 bbls. initial flow, which declined before the week closed. The Gulf Production Co. is trying to recover No. 19 Davis in the Big Creek Pool in Fort Bend County, which blew in at 3,175 feet and flowed wild before a strainer could be set. It showed for at least a 5,000-bbl. well before it sanded and choked itself off. The hole is now being washed. In the Edgerly (La.) Pool, the Gulf Refining Co. worked over No. 32 Bright-Penn. into a 600-bbl. producer at 3,200 feet.

South Liberty Pool

Mills Bennett's No. 8-B Pickett, reported late last week as a 1,500-bbl. well at 3,445 feet, declined to 500 bbls., showing 14 per cent water. The Bashara Oil Co.'s No. 2 Pickett came in making 2,500 bbls. at 3,535 feet, 23 gravity and 90 degrees temperature. Same company is bailing No. 1 Picket at 3,500 feet after working it over. F. M. Long deepened No. 1 Andrews to 3,680 feet and is bailing. It was one of the first wells developed on the northeast side of the dome at a higher level.

Drilling operations in the pool at the end of the week were as follows: Mills Bennett's Nos. 10 and 11 Pickett rigging up; No. 9 drilling around 1,300 feet; No. 2 Revierre-Brown 3,470 feet; Humble Oil & Refining Co.'s Nos. 4 and 5 Pickett "C" rigging up; No. 2 Pickett "A" drilling around 2,700 feet; No. 1 Pickett "B," 3,470 feet; No. 2, location abandoned; No. 3, drilling around 2,699 feet; No. 1 Pickett "C," 3,225 feet; No. 2, 2,750 feet; No. 3, 2,500 feet; No. 2 Harrison-Pickett "A," 3,210 feet; No. 1 Hanson "A," 2,650 feet; No. 2 Chambers "A," 3,500 feet; No. 3, 550 feet; No. 1 Chambers "B," 3,550 feet; No. 2 around 2,450 feet; No. 1 Mitchell, 1,500 feet; No. 1 Schade, 2,900 feet; No. 2, 2,300 feet; No. 3 rigging up; No. 4, drilling around 250 feet; No. 5 rigging up; No. 4 Pickett "B," drilling around 600 feet; No. 5 rigging up; Vacuum Oil Co.'s No. 6 Barrett, drilling around 2,850 feet; No. 7 3,260 feet; No. 8 is a location; No. 9 rigging up; Bashara Oil Co.'s No. 1 Pickett bailing at 3,500 feet; the Peer Oil Corp.'s No. 3 Harrison, drilling around 1,000 feet; No. 4 3,425 feet; No. 5 1,500 feet; No. 6 1,550 feet; Hoffer Oil Co.'s No. 1 Pickett, 3,475 feet; No. 2 3,530 feet; No. 3 waiting on rig.

The Sun Oil Co.'s No. 2 Schade is drilling around 3,500 feet; No. 3 3,425 feet; No. 4 2,050 feet; No. 5 1,950 feet; No. 6 1,050 feet; No 7 2,010 feet; No. 8 is a location; No. 9, drilling around 100 feet; No. 10, rigging up. Mrs. Neils Esperson's No. 1 Baldwin, reaming at 3,590 feet. The Oxford Navarro Oil Co.'s No. 4 Harrison is drilling around 3,420 feet; No. 5, fishing at 3,340 feet; No. 6, drilling around 3,150 feet; No. 7 2,050 feet; No. 8 2,500 feet; No. 9 is a derrick; No. 10 is rigging up. The Texas Co.'s No. 2 Staiti is drilling around 1,850 feet; Nos. 3 and 4 are derricks; No. 1 Simms Fee, drilling around 2,000 feet; No. 2 1,200 feet; Nos. 3 and 4 rigging up. Abercombie and others' No. 1 Harrison, drilling around 3,450 feet; No. 2 3,500 feet; No. 3, drilling around 500 feet. The Associated Oil Co.'s No. 1 Condict Fee, drilling around 2,050 feet. Sinclair Oil & Gas Co.'s No. 1 Condict Fee, 1,700 feet. F. M. Long's No. 2 Andrews is rigging up. The Supreme Oil Co.'s No. 1 Mitchell is rigging up. The Gulf Production Co.'s No. 1 Schade is drilling around 3,250 feet; No. 2 3,580 feet; No. 3 3,000 feet; No. 4 2,200 feet; No. 5 1,300 feet; No. 6 200 feet; No. 7 is rigging up; No. 2 Van De Venter is a location; No. 1 Antoine is drilling around 1,710 feet; No. 1 Deussen fee, 1,775 feet; No. 2 is a location; No. 1 Richardson is rigging up, as is No. 2, and Nos. 3 and 4 are derricks; No. 2 John Hamman is drilling around 3,375 feet; No. 1 A. Williams and others, 3,525 feet; No. 2 3,325 feet; No. 3 is a derrick; No. 4 drilling around 2,800 feet; No. 1 Orgain and others is bailing at 3,690 feet; No. 2 is drilling around 1,550 feet; No. 3 is a location.

Hull Pool

The Hull Pool spurted to the front again during the week, the Republic Production Co.-Houston Oil Co.'s joint No. 111 Dolbear, on the east side of the dome, flowing 1,000 bbls. at 2,360 feet, and No. 112 Dolber making 2,500 bbls. at 1,685 feet. No. 109 Dolbear is pumping 100 bbls., 5 per cent water, at 1,765 feet, and No. 110 is doing 150 bbls., 50 per cent water, at 1,865 feet. The Dolbear 800 acres is the most active lease in the Coastal region and is also the most prolific producer. The joint interests operating the lease have been putting on a drilling campaign since the Republic Co. started running oil through the line of the American Petroleum Co. from Hull to Galena and Norsworthy tank farm on the Houston ship channel. The Republic Production Co., the pipe line subsidiary, the Norsworthy tank farm and a substantial interest in the refining plant of the Galena-Signal Oil Co. of Texas, also on the ship channel, are all a part of the J. S. Cullinan interests, which are in turn held by the Republic Corp., a holding corporation. They have an agreement with the Pure Oil Co., whereby light gravity crudes from Mexia and Powell are delivered to the refinery in exchange for Coastal crude. A line from Huffman station on the trunk line of the Pure Oil Pipe Line Co. connects the Galena-Signal refinery with the Pure Oil Co.'s transportation system, extending from the Central-East Texas fields to its own refinery at Smith's Bluff, above Port Arthur on the Neches River.

Referring back to the completions in the Hull Pool, the Gulf Production Co.'s No. 48 Phoenix on the southeast side of the dome, is bailing at 3,230 feet. Its No. 17 Hannah, on the west side, will make a pumper at 2,375 feet, as will No. 15 Scarborough on the north side, at 3,560 feet. The Humble Oil & Refining Co.'s No. 16 Guidry, on the south side, is pumping 75 bbls. at 3,050 feet. The Eagle Point Oil Co. is bailing No. 3 Wheelock at 670 feet. The Hull Pool is the only producing district in the Gulf Coast that has production on all sides of the dome.

On the Dolbear 800 acres, the Republic Production-Houston Oil Co.'s No. 113 is drilling at 1,800 feet, and No. 114 is around 1,980 feet, with No. 115 at 1,867 feet. On the Phoenix, the Gulf Production Co.'s No. 49 is drilling at 3,040 feet; No. 50 below 2,800 feet, and No. 51 around 2,100 feet. No. 13 Baldwin is at 2,235 feet, and No. 20 Morris-Phillips at 3,276 feet. The Humble Oil & Refining Co.'s No. 2 Merchant is at 4,100 feet, and No. 2-B Hannah around 2,760 feet. No. 7 Guidry is working over. The Higgins Oil & Fuel Co.'s No. 6 Taylor is drilling at 3,355 feet. The Houston Production Co. has made a location for No. 9 Taylor.

On the north side of the dome, the Yount-Lee Oil Co.'s No. 5 Stengler is at 2,845 feet, with No. 7 rigging to start drilling. No. 11 Merchant is at 3,400 feet; No. 12 Merchant is at 2,655 feet. On the southwest side, The Texas Co.'s No. 3 Hannah is a fishing job. A derrick is up for The Texas-Vacuum Co.'s joint No. 5 Hannah. The Mecom Oil Co.'s No. 8 Mecome is drilling at 2,900 feet.

Orange Pool

The completions in the Orange Pool during the week were all deep sand wells and none very large. The Humble Oil & Refining Co.'s No. 10-A Chesson is a 350-bbl. producer at 4,735 feet with 20 feet of strainer set. Same company abandoned No. 9-A Chesson at 4,520 feet. No. 11 Winifree is bailing at 4,720 feet. The Mutual Oil Co. is fishing for the strainer stuck in No. 4 Chesson at 4,777 feet. The Gulf Production Co.'s No. 17 Hager is making 315 bbls. at 3,475 feet. and No. 4-A Chesson 150 bbls at 4,722 feet. No. 1 Winifree, a work over, will pump at 3,325 feet. The Edgerly Petroleum Co.'s No. 2 Carbello, a workover, is pumping 20 bbls. at 3,300 feet. The Tillery Oil Co.'s No. 1 State land, bailed salt water at 4,250 feet. The Brownie Babbittee Oil Co.'s No. 4 McLean was a failure at 4,800 feet and was sidetracked and is again testing at 2,860 feet.

The Gulf Production Co. set casing in No. 2 Granger at 4,475 feet. No. 1 M. Granger is drilling at 4,455 feet. The Sinclair Oil & Gas Co.'s No. 1 Graner is working over. The Monarca Oil & Refining Co. (Peer Oil) No. 5 Galliere is drilling at 3,070 feet. The Rycade Petroleum Co.'s No. 5-A Cow Bayou is at 4,235 feet. The Humble Oil & Refining Co.'s No. 21 Chesson is drilling at 5,320 feet. It is the fourth mile-deep hole to be drilled in the pool. The Sun Oil Co.'s No. 3 Brown is at 4,100 feet, and No. 6 Gunstream drilling below 4,070 feet. The Supreme Oil Co.'s No. 1 Jackson is deepening at 3,765 feet. The Orange Petroleum Co.'s No. 9 Chesson is at 875 feet. The Mutual Oil Co.'s No. 14 Chesson is deepening at 1,345 feet.

Goose Creek Pool

It has been a very dull week in the once famous Goose Creek district at the head of Trinity Bay. The Gulf Production Co.'s No. 5 Paddock is flowing 250 bbls. by heads at 1,865 feet. Its No. 32 State land in the bay is standing at 2,750 feet with 2,000 feet of fluid in the hole and will be rigged to pump. No. 10 Churchill-Galliard is a 25-bbl. pumper and No. 9 Wright is bailing at 2,400 feet.

The Humble Oil & Refining Co.'s No. 1 Hog Island has cemented casing at 3,400 feet; Nos. 60 and 61 Simms-Smith cemented at 4,200 and 4,175 feet respectively; No. 62 is drilling around 1,900 feet; Gulf Coast Oil Corp.'s No. 6 Gaillard 1,690 feet; Sun Oil Co.'s No. 3 Wright 2,375 feet. The Norman Bruce Petroleum Co.'s No. 1 Scorrega is washing to bottom. The Southern Exporation Co.'s No. 11 Wright is drilling around 1,910 feet; Gulf Production Co.'s No. 17 J. Gaillard fee 2,800 feet; No. 33 State land is a derrick; No. 9 Chapman-Bryan is drilling around 3,000 feet, and No. 24 Beaumont at 2,670 feet.

The Gulf Production Co.'s No. 8 Luscher at Blue Ridge is drilling around 3,550 feet; No. 3 Invincible Oil Co. is drilling at 2,635 feet.

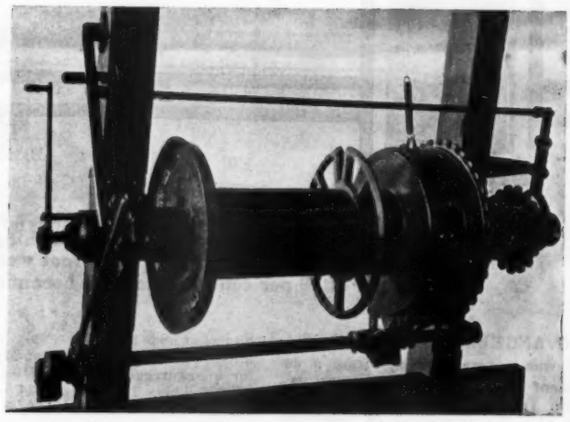
H. R. Cullen's No. 6 Howe at Pierce Junction is drilling around 3,360 feet. The Texas Exploration Co.'s No. 7 Dooley 3,350 feet; Gulf Production Co.'s No. 1 Davis at Long Point 1,700 feet.

In the Big Creek Field, The Texas Co.'s No. 1 Lingua is drilling around 4,170 feet; Gulf Production Co.'s No. 18 T. W. Davis 3,275 feet; No. 20 3,200 feet.

In the Sour Lake Pool, the Humble

(Continued on Page 156)

These Features Explain the Increasing Demand for the LUFKIN PUMPING UNIT AND HOIST



Lower Power Cost	No Belts, Counter Shafts or Rods
Lower Upkeep Cost	High Salvage Value
Saves Time	Continuous Operation
Greater Safety	Reduces Fire Hazard

And Many Others

While designed for direct motor connection, can be driven by gas or oil engine directly connected or geared to the unit.

WRITE FOR CATALOGUE AND PRICES

PATENT PENDING

LUFKIN FOUNDRY & MACHINE CO.

NEW YORK CITY
3009 Woolworth Bldg.
HOUSTON
806 Carter Bldg.

Lufkin, Texas

LOS ANGELES
506 Com. Exch. Bldg.
TULSA
317 Roberts Bldg.

California Field Operations

By L. P. Stockman

Rosecrans Field rapidly taking on appearance of busy oil field and output of light gravity oil there expected to show good increase in near future. General Petroleum Co.'s No. 1 Amestoy a 6,737-foot well, pumped 125 bbls. 28 gravity oil with cut of 10 per cent. Inglewood becoming active area.

LOS ANGELES, Calif., April 18.—There was no great change from a development standpoint in any of the San Joaquin Valley fields in March, as compared with the operations of February. There were 11 new wells finished in the Midway-Sunset area, two in the Lost Hills-Belridge section and one each at Elk Hills, Kern River, McKittrick and Wheeler Ridge. The Sunset section of the Midway-Sunset Field contributed five new wells, good for 640 bbls. a day of the area's total number of new completions. The best well finished at Sunset during the month was the Empire Gas & Fuel Co.'s No. 1 on Section 4-11-23. It was drilled to 3,855 feet and is credited with 250 bbls. of clean 26.8 gravity oil per day. The Standard finished two new producers on the M. J. M. & M. property, Section 36-12-24, each of which was good for 100 bbls. a day. Individually they were No. 56, finished at 2,055 feet, and No. 57, completed at 2,221 feet. The output from each tests 15.2 degrees and cuts 2 per cent. Just previous to their completion, the company finished new rigs for Nos. 58 and 59 and it is believed that work will be started on these two new holes immediately. The company's No. 1 Rass, Section 10-11-23, has not yet been finished, although it looks quite encouraging at 4,891 feet. No. 27 Maricopa, Section 1-11-24, has just passed the 2,000-foot level, while the company's No. 43 Monarch, on Section 2-11-24, is nearing 2,400 feet.

The Midway Northern finished its tenth producer on Section 32-12-23 by bringing on well No. 11. The initial output, 115 bbls., from 3,550 feet, tested 24.1 degrees and showed a cut of 2 per cent. The General Petroleum's well No. 370, on the old Midway Oil Co.'s property, Section 35-12-24, was good for 75 bbls. of 14.4 gravity oil on the pump from 3,035 feet. Upon the completion of this hole the company spudded in No. 376. Two other new holes were started during the month, the company spudding in No. 250 on Section 34-12-24, and No. 69, on Section 12-11-24. In addition to No. 69-A, the company has two other drillers on this property, No. 59-A at 880 feet, and No. 60-A, at 1,081 feet. The Caliposa Petroleum started work on its second hole, No. 2, on Section 36-32-23, and reports a depth of 228 feet at the close of the month. The Berry Holding Co. spudded in No. 13 just previous and reached a depth of 686 feet at date of reporting. The California Petroleum did not finish any new producers but is making satisfactory progress with well No. 1 on Section 34-32-24. The Formax Oil Co. has just spudded in well No. 18, on Section 36-32-23, and the bit is at present going ahead at 511 feet. The Mascot's well No. 4, Section 36-32-24, at 3,270 feet, and the Obispo Oil Co.'s well No. 9, at 2,660 feet, should be on production within the next few weeks. The Calivada Oil Co. anticipates an early completion on well No. 2, Section 34-32-24, now at 4,398 feet. The Pacific Oil Co. lists two drillers in this area, No. 11, on Section 3-11-23, and a similarly numbered one on Section 35-32-24. On the former property the bit is going ahead at 4,695 feet, while the crew on the latter lease reports 3,995 feet.

Midway

In the Midway section of the Midway-Sunset Field there were six new wells finished during the month of March, good for an aggregate initial daily production of 676 bbls. There were 11 new wells started, the Pacific and Honolulu taking credit for the greater part. For the first time in several months there were no really large wells finished in this area. The best completion recorded during March was the Pacific's No. 98, on Section 1-32-23. It was finished at 2,596 feet and yielded 250 bbls. of 26.7 gravity oil. Immediately upon its completion the Pacific spudded on No. 84, on the same section, and made 1,730 feet of hole before the close of the month. No. 97 on this lease has just passed the 3,000-foot level. The Pacific finished two other somewhat smaller wells, No. 60, on Section 31-31-24, and No. 51, on Section 5-32-4. The former was good for 80 bbls. of 26.4 gravity oil from 3,200 feet, while the latter pumped 50 bbls. of 26.5 gravity oil from 2,642 feet. In addition to the new wells started on Section 1-32-23, the Pacific spudded in No. 71, on Section 31-31-24, and No. 25, on Section 33-31-24. The company is running 10 strings of tools at present and should list No. 41 on Section 3-32-24, and No. 85, on Section 15-32-24, as early completions.

The Honolulu finished one new well and started work on three others, all on Section 6-32-24, a Government lease. The completion was No. 55, drilled to 2,795 feet and rated at a 140-bbl. pumper, the oil testing 28.4 degrees and showing a cut of 1 per cent. The new holes started were Nos. 24, 35 and 56 and their present depth is 1,100 feet, 2,393 feet and 2,398 feet, in the order named. The company is putting the finishing touches on the rigs for Nos. 34 and 54, both located on this lease, and on No. 61, to be drilled on Section 4-32-24. The Chanslor-Canfield Midway Oil Co. finished a small pumper on Section 25-31-22 when No. 12 was put on the beam at 2,254 feet. It was good for 15 bbls. a day, the oil testing 15.3 degrees and showing a cut of 3 per cent. The Brookshire Oil Co.'s No. 14, on Section 24-31-22, was good for 141 bbls. on the beam from 2,700 feet, the oil testing 28.8 degrees and showing a cut of 1 per cent. Judging by the completion depth of No. 14, the company should list No. 15 on this same property as an early completion and it will probably be good for somewhere between 125 and 150 bbls. a day.

That the Midland Oilfields, California Petroleum, has been doing some fast drilling in this area is evidenced by the footage made in No. 17, on Section 24-31-23, spudded in during the early part of March. Before the close of the month the bit had passed the 4,000-foot level and, barring unforeseen delays, this hole should be on production within the next three or four weeks. Rigs have been erected for Nos. 15 and 16 and it is probably safe to assume that work will be started on one of them as soon as No. 17 is placed on production. The North American started a new well, No. 18, on Section 30-31-24, and this hole, now at 3,590 feet, No. 15 at 3,150 feet and No. 17 at 3,810 feet should result in good production upon completion, as this property, a Government lease, has yielded 1,000-bbl. wells quite regularly. The company's faith in this property is demonstrated by the two new rigs erected for Nos. 19 and 20. The Midway Pacific has erected a new rig for No. 10, on Section 24-31-23, and will undoubtedly start work within the near future. The Balboa Oil Co. spudded in No. 46, on Section 24-31-23, and made 3,940 feet of hole in three weeks. If the same speed is made from now on this well should be tanking oil within 30 days. Manly & McGinn, who have been held up for some time with mechanical trouble in No. 12, Section 15-31-22, will temporarily suspend operations on this hole and spud in No. 13, the rig for which has just been finished. Total production of the Midway-Sunset area for March is expected to aggregate approximately 3,100,000 bbls.

Elk Hills

The one well finished in the Elk Hills Field during March stands to the credit of the Pacific Oil Co. and, while it was only a comparatively small producer, it was, nevertheless, a satisfactory one. The company's successful completion was No. 23, on Section 27-30-24, which made 350 bbls. of clean 17.1 gravity oil from 3,405 feet. The company is drilling four wells on Section 35-30-24, having just spudded in No. 75. No. 103, on this lease, is down 2,980 feet, while No. 8 is going forward at 3,032 feet and No. 89 at 3,180 feet. The Standard is drilling two holes, No. 21 Kern County, Section 31-30-25, at 3,195 feet, and No. 38 Tupman, Section 36-30-24, at 3,498 feet. The Union's No. 10 Federal, Section 26-30-24, is reported at 3,306 feet, while the Associated's No. 52, on the same section, has just passed the 3,280-foot level. Neither the Belridge nor Pan American is working on any new holes. Total production during March should be around 1,200,000 bbls.

McKittrick

The Berry Holding Co. was the only concern at McKittrick to finish a new producer during the past 30 days. The company's No. 8-A, on Section 13-30-21, was good for 35 bbls. of 14.6 gravity oil from an even 1,000 feet and, while the output seems small in comparison to some of the other wells finished, it is above the average well production for the field. Recent leasing on the McKittrick front should lead to renewed activities in this area, although no great amount of new development work is anticipated. The Standard is putting the finishing touches on the rigs for Nos. 1 and 2 Weston, Section 25-29-21, and work should be started on these new holes within the next week or ten days. The Washington Petroleum is anticipating the drilling of another well and this concern, which recently finished a very satisfactory producer, should spud in No. 4, on Section 8-30-22, as soon as the rig has been completed. H. B. Wells has erected a new rig on Section 21-30-21, and it is believed that early drilling is anticipated. A. J. Bonke, Elk Hills Investment Co. and the Oleo Fluo Oil Co. have also started work on new rigs, which seems to indicate that the McKittrick Field should reflect a little increase in drilling within a short time. March output should be around 185,000 bbls.

One new well was finished in the Kern River Field, when the East Puente Oil Co. put No. 1-A, Section 4-29-28, on the beam several days ago. It pumped 20 bbls. of 13.6 gravity oil from 1,012 feet. The Modoc Petroleum started the only new hole spudded in during March and reports 1,300 feet of hole in its test on Section 10-27-28. No substantial increase in drilling is expected in this field, as it is fairly well drilled up and the small production obtained from new wells is not conducive to heavy drilling. It is expected, however, that one or two new wells will be spudded in on the Kern River front in the near future. Kern contributed approximately 540,000 bbls. during the month of March.

Wheeler Ridge

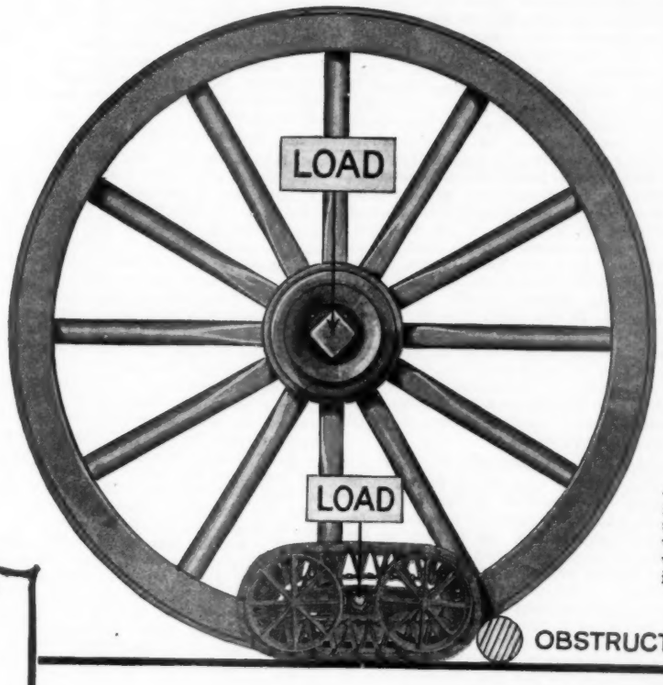
The Wheeler Ridge Field is being drilled systematically and, while scout reports do not show any great amount of work, field development is, nevertheless, progressing satisfactorily. The Standard added one new well to its list of producers during March by finishing No. 13 on Section 28-11-20. It was good for 50 bbls. of 25.1 gravity oil in the upper zone from 2,225 feet. Nos. 10 and 11 on this property are being carried down to the deep zone, their present depths being 4,350 feet and 4,455 feet respectively. No. 17, the latest spud, is going ahead at 1,290 feet. The company has one producer on Section 27-11-20, and one driller, No. 18, at 1,900 feet. The company's 14 producing wells in this area are good for approximately 25,000 bbls. a month. The General Petroleum has two producers, good for about 5,000 bbls. a month, and one driller, on Section 28-11-20, No. 3, at 4,301 feet.

Not a single new well was finished at Coalinga and, judging by the present depths of the seven wells drilling in this area, no completions are expected within the next few weeks, although it is possible that one or two shallow wells may be finished. Two small pumpers were finished in the Lost Hills-Belridge Field,

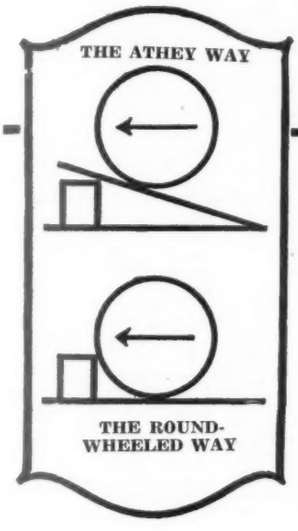
TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Following is a list of tankers, date departed, destination, kind of cargo and amount in barrels:

A. C. Bedford, April 7, New York, crude	118,879
Francis E. Powell, April 7, Philadelphia, refined	85,737
Wm. Irish, April 8, Philadelphia, refined	80,020
Agwismith, April 9, New York, crude	105,566
John D. Archbold, April 11, New York, crude	132,706
Hahira, April 12, Philadelphia, crude	75,254
Coastwise	
Los Angeles, April 6, Martinez, crude	72,977
El Segundo, April 6, Willbridge, refined	33,070
K. R. Kingsbury, April 7, Richmond, crude	83,136
Lebec, April 7, Portland, fuel	65,024
Mericos H. Whittier, April 8, Avon, crude	80,891
W. S. Miller, April 8, Richmond, crude	70,635
Warwick, April 10, Martinez, refined	40,427
K. R. Kingsbury, April 11, Richmond, crude	80,108
La Purisima, April 11, San Diego, refined	25,807
Richmond, April 12, Point Wells, fuel	61,572
W. S. Miller, April 12, Richmond, crude	75,078
Los Angeles, April 12, Martinez, crude	70,111
Exports	
Kanju Maru (Jap.), April 7, Japan, fuel	60,177
Corbis (Br.), April 8, Japan, fuel	65,077
Watertown, April 8, London, refined	75,760
Montebello, April 9, Vancouver, fuel	80,737
Hayamoto (Jap.), April 10, Japan, fuel	54,165
Liss (Nor.), April 10, China, refined	65,501
Tachibana Maru (Jap.), April 10, Japan, crude	50,609
Java Arrow, April 11, China, refined	80,089
Santa Maria, April 11, Chile, fuel	80,387
Scottish Bard (Br.), April 12, Japan, fuel	60,501
From Port San Luis	
La Purisima, April 7, Oleum, refined	31,760
From San Francisco	
Lubrico, April 7, Seattle, fuel	85,752
Oleum, April 9, Gray's Harbor, refined	31,296
Kewanee, April 9, Los Angeles, refined	27,811
Atlas, April 10, Eureka, refined	12,571
Capt. A. F. Lucas, April 12, Willbridge, refined	32,998



An Athey Truss Wheel goes over a 6-inch obstruction as easily as would a huge round wheel 17 feet, 5 inches in diameter.



Atheys Pull Easily Over Ground Obstructions

The Athey Truss Wheel has a mechanical advantage when passing over an obstruction in the road, equivalent to a round wheel of great size.

The load-carrying axle in an Athey Wheel is placed in the center of an oscillating rocker beam, on the ends of which are mounted track wheels. A track band is fitted loosely around the two pair of track wheels. When an Athey Wheel surmounts an obstruction, the load is gradually carried up and down an inclined highway of steel.

This mechanical advantage makes possible the hauling of exceptionally heavy loads over rough and uneven ground with less than one-half the power required by round wheel equipment. This makes possible enormous savings in operating and maintenance costs of tractive power.

They Bridge the Soft Spots

Capacity 10 tons. Send for further information.

ATHEY TRUSS WHEEL CO.
130 No. Wells St., Chicago, U. S. A.
Cable Address: "Trusswheel Chicago."
The Baldwin Locomotive Works, Foreign Representatives, Philadelphia, Pa.

ATHEY TRUSS WHEEL WAGON

IT BRIDGES THE SOFT SPOTS

both standing to the credit of the Devils Den Oil Co., operating on Section 30-26-21. No. 2-B was good for 35 bbls. from 1,250 feet, while No. 4-D made 45 bbls. from 1,230 feet, the oil in each case testing approximately 18.2 degrees in gravity. The Universal Oil Co. has a prospective producer in No. 4 on Section 32-26-21, now at 2,300 feet. The Bear State Oil Co. is working on what should be finished as a shallow producer within a short time. No. 13, on Section 34-28-20, now at 775 feet, is the well in question. There was no change made during the month in the amount of production shut in and, in view of the present heavy output of the State, an early readjustment is not contemplated. Lost Hills-Belridge production during March is estimated at 155,000 bbls.

Rosecrans

The Rosecrans district is rapidly taking on the appearance of a busy oil field, and although the present daily output is only approximately 20,000 bbls., it should be substantially boosted by the completion of numerous wells in the near future. The immediate area in which these new completions are to be finished has been rather spotted to date in that some wells come in big and maintain a good flow, while others drop off very miserably within a short time. It is a little early to say just what the peak production will be for this district as the field is still undefined and spotted with large and small wells. The area, however, in which the majority of the present holes are being drilled is the most productive in the field and it is quite possible that the present daily production will be substantially increased within the next 30 to 60 days. It is problematical, however, whether the maximum output will be maintained for any considerable length of time.

The Barnsdall returned No. 2 O'Dea to production during the early part of the current week after redrilling and deepening it to 4,218 feet. The output upon completion was 1,705 bbls., the oil testing 40.4 degrees and showing a cut of 5 per cent. A pressure of 700 pounds has been built up back of a ¾-inch bean. The company now has two good wells in this field, as No. 3 O'Dea is flowing 1,250 bbls. of clean 41.8 gravity oil from 4,340 feet. The Barnsdall is to be congratulated upon the output of these two wells and, in view of the hard luck which the company has experienced to date, they should be particularly gratifying. All of the company's producers on the Rosecrans property are small, ranging from 50 bbls. to 350 bbls. each, but the oil is unusually clean and of a high gravity, bring a maximum financial return.

Deep Well on Production

The General Petroleum is pumping No. 1 Amestoy, a really deep well, intermittently from 6,737 feet. The production yesterday was 125 bbls. of 28.7 gravity oil which registered a cut of 10 per cent water. Good progress is being made with Nos. 1-A and 2-A on the Vaughn property, the former being down 4,505 feet and the latter 4,198 feet. George F. Getty is replacing his No. 2 Athens, lost as the result of a recent gas blow out, and is making hole in the replacement at 986 feeet. Nos. 1, 4, 5, 6 and 7 are also making good footage. The Julian Petroleum is making preparations to augment its three drillers with six more and rig construction on the new location staked will probably be started within a short time. The Marine Oil Co., with nine drillers to its credit at Rosecrans, undoubtedly intends to start several additional holes, if the request made to the State Corporation Commission to issue additional stock has any bearing on the company's operations in this district. E. J. Miley listed a new well by finishing No. 3 Athens at 5,189 feet, after plugging back from 5,261 feet. Bottom water was encountered at the latter depth but effectively excluded by the plug put in bottom. Instead of a water well, Miley now has a producer making 565 bbls. of 35.2 gravity oil which shows a cut of 2 per cent. This is Miley's fourth well in this field, No. 1 doing 1,200 bbls. a day from 5,238 feet, No. 2, 230 bbls. from 4,707 feet, and No. 4, 1,800 bbls. from 4,985 feet.

The Petroleum Midway picked up the pay in No. 1 Baskin at 5,357 feet and is landing a string of 6¼-inch preparatory to making a production test. No. 1 Kreitz Community encountered an oil sand at the shallow depth of 4,054 feet rather unexpectedly, but the showing was so satisfactory that a string of 8¼-inch has been cemented and a production test is scheduled for the near future. Satisfactory progress is being made in all of the company's other drillers. The Sentinel made a short flow test on No. 4 Athens at 4,185 feet, but a water shutoff had not been secured and the hole will be recemented. None of the outposts, which are being watched, for developments, showed any improvement during the week. No. 1 Cowan, of the Standard, in the northeastern front, is still dry at 6,345 feet, as is also No. 1 Leonis, of the Shell, and No. 1 Bilhorn, of the Chanslor-Canfield Midway Oil Co., farther to the north. In the south, the St. Helens has a 5,160-foot hole in No. 1 Rowell, while the U. S. Royalties is preparing to deepen at 4,754 feet. No. 1 Gordon, of the Union, in the extreme southwest, had a fair showing at 6,596 feet, and the company may possibly secure a small pumper at this depth.

Inglewood

The rapidity with which wells can be drilled to completion in the Inglewood Field and the minimum expenditure required have proven big factors in the building up of production in this district. The present output is running around 3,000 bbls. a day, and, judging by the number of holes drilling and those scheduled to be started in the near future, a further increase in production is anticipated during the next several months. The Petroleum Securities has just finished No. 3 Cone and will undoubtedly start work on two other wells on this property within the next week or ten days, as the rigs are in process of construction. No. 3 Cone came in doing 392 bbls. of 15.5 gravity oil upon completion, the output cutting a little better than 5 per cent. This property has yielded several good producers from approximately the same depth at which No. 3 was finished, 1,793 feet. The next hole to be finished on this lease will probably be No. 6, Now standing cemented at 1,245 feet. No. 1 Dabney-Lloyd is making a casing test at 1,336 feet, while a rig is going up for No. 2. Three new rigs are being finished on the Ruble lease and material is on ground for several more.

The Standard redrilled and cleaned out No. 2, on Los Angeles Investment lease No. 2 and, when put on the beam at 2,044 feet, it pumped 80 bbls. of 15.1 gravity oil. It was finished with an 8¼-inch oil string, including 155 feet of 70-mesh screen. Well No. 1, a deep test on this property, is in a hard shell at 5,340 feet; No. 3 is a rig and No. 4 a location. On Los Angeles Investment lease No. 1, wells Nos. 4, 5 and 6 are drilling ahead, while Nos. 8, 10 and 11 are rigs and 7 and 9 material. Vickers lease No. 1 shows rigs for Nos. 4, 5, 6 and 7, and a foundation for No. 8. Two strings are being operated on Vickers lease No. 2, while a rig is standing for well No. 1 on Vickers lease No. 3. The Shell spudded in No. 1 Rindge during the early part of the week and has made 400 feet of hole to date. The Petroleum Midway is putting the finishing touches on rigs for No. 2 Smith and No. 3 Moynier. No. 5 Smith is making hole at 2,255 feet, while No. 2 Moynier is in a sandy shale at 1,020 feet. It is reported that W. W. Bush, who started constructing a rig some time ago, has decided to hold off drilling pending field development and will not spud in as scheduled.

No. 7 Sentous is causing the Pan American some little anxiety as a result of its failure to pick up the pay. It is getting quite deep and is not very encouraging at 2,850 feet. The Associated picked up a very satisfactory showing of oil and gas in No. 1 Vickers at 2,900 feet and the outlook is very promising for early production. No. 2 has had several faint showings at 2,070 feet, but is drilling ahead. Rigs are practically finished for Nos. 3, 4, 5, 6, 7, 8, 9 and 10 and, judging by this large number of derricks erected simultaneously, the company anticipates rapid development of the property. The Universal Consolidated is drilling ahead in No. 1 Youngsworth at 3,600 feet, the formation being a hard sand. The log of the well does not show any promising indications since spudding. No. 3 Machada of the Mowhak Oil & Gas has just picked up the oil sand at 1,880 feet and a small pumper is expected. The Wilshire is drilling ahead in No. 1 Nolan at 1,450 feet but is not yet deep enough to pick up the pay.

Dominguez

No. 24 Reyes of the Shell increased the Dominguez Field production 610 bbls. a day upon completion during the early part of the week. It was drilled to 4,125 feet and finished with a 4½-inch oil string carrying 385 feet of 80-mesh screen. The oil, flowing through a 1-inch bean under a pressure of 420 pounds, is clean and tests 30.3 degrees. No. 21 Reyes, also a new well, was somewhat smaller than No. 24. It made several short flows but was finally listed at 540 bbls., the oil being unusually clean and testing 30.1 degrees in gravity. It is flowing through a 1-inch bean under a pressure of 385 pounds. The completion depth was 4,048 feet and the oil string a 6¼-inch. A test was made of No. 26 Reyes at 3,655 feet but a water shut-off had not been effected and a recement job will be in order. The Marland had a little better luck and successfully secured a shut-off on No. 7 Domingues, its deep test, at 4,300 feet. Work has been temporarily suspended on No. 4 Dominguez at 4,370 feet and No. 6 Dominguez at 4,330 feet. The Union is really working on only one hole, No. 9 Callender, at 4,210 feet, the remainder of the company's drillers being temporarily suspended. No. 3 Hellman is idle at 4,263 feet, while Nos. 2 and 3 on the Carson property are standing idle because of mechanical trouble.

The General Petroleum is preparing Nos. 6 and 7 on the Poggi lease at Torrance for production at 3,800 feet and it is believed that they will probably be good for around 100 bbls. each. There were no new wells actually turned loose during the week, although there were several nearing this period of their existence. The Petroleum Securities finished well No. 16 on Kleinmeyer lease B, at 3,792 feet and should put it on the beam within the next few days. No. 18 also looks like an early completion as it is in the sand at 3,745 feet. The Shell is pumping a little oil from No. 2 Kettler, a deep test drilled to 5,373 feet, and later plugged back, but the output has not cleaned up sufficiently to consider it a final completion.

Long Beach

Daily production at Long Beach slumped off approximately 1,000 bbls. during the past week. The field has been gradually settling for some time and reports indicate that further drops can be expected. Completions are getting scarcer and the initial output from new wells is quite small. The Big Jumbo Oil Co. finished redrilling and deepening its well No. 1 to 4,420 feet, but the failure to secure a natural flow has resulted in a delay, during which time it will be prepared for the beam. The A. T. Jergins Syndicate was also unsuccessful in securing a flow and will be obliged to put its well No. 3 on the beam at 4,185 feet. The Regina Petroleum did not secure an effective water shut-off on No. 2 Judd at 3,821 feet and it will be recemented within the next week or so. The San Martinez is rigging up No. 4-A Booth to replace No. 4 Booth, recently abandoned, and will spud in immediately.

The only development of interest at Huntington Beach during the past week was the favorable core samples secured in No. 18 Bolsa Chica of the Standard

(Continued on Page 159)

News of Mexican Fields

By George Blardone

TAMPICO, Mexico, April 17.—Of the completions in Mexican Fields during the past week, the most interesting can be set down as Cia. Petrolera Franco Espanola's (Marland's drilling subsidiary), No. 25 Limon, in the Marland Field, which came in good for 1,500 bbls. at 2,125 feet. Thus persistent effort brings its reward in the full measure of time! This well is located on a line that bears southwest from Mexican Petroleum Co.'s No. 1 Pez, the first economic producer in all Mexico. On the same line, it might be remarked, to the northeast, is Mexican Pete's La Dicha wells, possibly the most consistent group of producers at this time in the Ebano sector. Of course there is considerable intervening distance between No. 1 La Pez and the Marland No. 25, as well as between the former and the La Dicha line of wells to the northeast, but the fact remains that all of them are practically on a compass northeast-southwest line.

The Marland interests completed its first well, No. 1 Limon, April 20, 1922. At the shallow depth of 1,702 feet, it showed for 5,000 bbls. similar in gravity to Ebano oil, or say, slightly heavier than the old Panuco product. In the enormous acreage the company owns, comprising the Hacienda of Limon, it appeared from this well as if fortune had immediately smiled on it without the travail that is such an old story in operations in virgin territory. But No. 1 quit flowing when it was opened up for fuel oil; and the best it would ever do afterwards was a very small volume of oil through a tube. Operations have steadily continued, however, here and there under comprehensive geologic surveys, and while a few small wells were completed in the pay the total value of oil tapped was negligible until No. 25 came in the other day as noted. This last completion marks the twenty-third well the company has finished in the Limon, of which seven could probably do as much as 1,000 bbls. before No. 25 was finished, and they were more or less scattered.

Altogether there was 15 wells finished during the week not previously reported. International Petroleum Co.'s No. 161, Lot 5 Cacalilao sector of the northern fields, is rated good for 8,000 bbls. at 2,070 feet. The only other pay completion in the list is a small head well belonging to Huasteca Petroleum Co., in the South fields. It is No. 56 Cerro Azul, good for about 200 bbls. at a sub-sea level of 1,852 feet.

The Failures

The failures were confined principally to the Cacalilao and Corcovado sectors of the northern fields. They follow: International Petroleum Co.'s Nos. 157 and 167 are both dry holes in Lot 5 Cacalilao at 2,302 and 2,300 feet respectively. Mexican Sinclair Petroleum Corp.'s No. 112, Lot 1, is a duster at 2,300 feet. Transcontinental Petroleum Co.'s No. 140, Lot 4, was a dry hole at 2,240 feet, and in Lot 5 its Nos. 156 and 161 suffered the same fate at 2,170 and 2,250 feet.

In Corcovado, Cosmos Oil Co.'s No. 14, Lot G, is virtually a dry hole at 2,306 feet, being shut down for orders as a matter of form. International's No. 6, Lot 6 there, finished up a duster at 2,505 feet, and the same fate attended Mexican Gulf Oil Co.'s Nos. 21 and 22, in Lot 4, both quitting at 2,350 feet.

In its right-of-way in Chapacao, National Lines' No. 7, is finished at 2,400 feet, a virtual failure although a desultory "heading" is claimed for it.

In the old Panuco, English Oil Co.'s No. 10 Rufino, quit as a duster at 2,105 feet.

Bridges or Pockets?

In the northern fields two wells, recently reported as big ones, are causing discussion. The first of these is the

(Continued on Page 152)

ZERO HOUR
ELECTRIC BOMB
stands between your well and possible ruin from faulty shots

ANTIQUATED methods of detonating shots in oil wells are unsafe methods. Every form of detonation from the sixty-year-old Bumper Squib to the twenty-year-old Electric Wire Shot is alive with danger to your well. Perhaps you have never had an unfortunate experience with one of these antiquated methods but the unfortunate experiences of others tell you that the danger is real and always present. For instance:

An Official of One of the Largest Midcontinent Producing Companies Makes This Comment—

"Our losses in the LAST YEAR from faulty shots by old methods of detonation (Jack Squibs, Electric Wire Shots and Bumper Squibs) would pay for all the Zero Hour Electric Bombs we could use in the next FIVE YEARS."

Why Take a Chance When You Don't Have To?

Zero Hour Electric Bomb is a safe, sure method of detonation as proven by its record of more than 400 successful detonations in the Wyoming and Midcontinent fields in the past six months.

Zero Hour Bomb Eliminates The Danger Present in Every Squib Shot

That is, that an accidental or premature explosion may damage the casing; Zero Hour Bomb is electrically operated and time controlled; it positively can't be discharged until the time set—1 to 11 hours as you predetermine. Our records show that Zero Hour Bombs explode, on the average, within two minutes of the time intended.

Zero Hour Bomb Eliminates The Danger Present in Every Wire Shot

If circuit is broken cavings that fall on top of unexploded shot must be cleaned out before a second shot is attempted—a hazardous undertaking as often the concussion of tools explode the charge warping the tools so badly as to make recovery impossible. Zero Hour Bomb is placed immediately on shot; cavings cannot prevent discharge.

Why Spend From $10,000 to $50,000 in Drilling a Well and Take a Chance of Ruining it by Using Obsolete Methods of Detonation— ?

Zero Hour Torpedo Company

General Office
P. O. Box 2100
Casper, Wyoming

Eureka, Kansas
219 S. Elm St.
Phone 774

Tulsa, Oklahoma
710 Cosden Bldg. Dial 2-9612
Night Dial 3-1775

Factory
Boulder, Colorado

MAIL THIS COUPON

Zero Hour Torpedo Company
P. O. Box 2100, Casper, Wyoming

Without obligation on my part, please send me a copy of your

Free Booklet
"Oil Well Shooting: Past and Present"

Name _____

Firm _____

Address _____

North Louisiana-Arkansas

By M. L. Vaughn

Smackover heavy passes the 230,000-bbl mark, establishing record. Deep sand producing 185,000 bbls. daily. Yount Lee and Proven Production companies get 25,000,000-foot gasser in Caddo Parish, between Bethany and Waskom Pools. Holmes-Yazoo, Mississippi, test to be followed by drilling.

SHREVEPORT, La., April 20.—Passing the 230,000-bbl. mark in average daily production of heavy gravity oil from both upper and lower sands, the Smackover Field has smashed all previous records and the pipe line companies have been forced to take steps to protect themselves from responsibility should the present daily output continue or increase.

The production on Sunday from the deep sand was estimated at 185,000 bbls., and from the 1,900-foot sand 52,800 bbls., a total of 237,800 bbls. of heavy gravity oil. The older wells are holding around their early production and there is little indication of the gas pressure diminishing. The peak of production should be reached within two or three weeks.

After several revisions of the schedule of oil prices during the past week, the Standard Oil Co. of Louisiana posted the following schedule on Saturday, April 18, for Smackover crude:

27 and above	$1.30
26 to 26.9	1.25
25 to 25.9	1.20
24 to 24.9	1.10
Below 24, to apply to oil for shipment..	.60
Below 24, to apply to oil for storage...	.40

On April 14 a cut of 20 cents, affecting heavy Smackover crude only, brought the price down to 80 cents, with Smackover light ranging from $1.10 to $1.30 a barrel. On April 16, an announcement was made that this price would be paid only so long as shipping facilities lasted and that should it become necessary to store the oil only 50 cents a barrel would be paid. On April 18 a further reduction was made, bringing the price of oil for shipment down to 60 cents and that for storage to 40 cents.

The Gulf Co. followed the Standard with only one price, 40 cents for Smackover heavy. The Texas Co. posts three grades in Smackover, below 24, 60 cents; 24 to 25.9, $1.00; and 26 and above, $1.30. The Atlantic prices are: Below 24, 40 cents; 24 to 24.9, $1.10; 25 to 25.9, $1.20, with the higher grades unchanged.

Already the pipe lines are being taxed to their utmost and storage filled almost to capacity. Old storage pits, left from the former boom days in the Smackover Field, have been cleaned out and utilized and new earthen storage is being provided by individual companies. Owners of heavy oil production have a discouraging prospect ahead of them but drilling activity has in no wise abated and the only promise of relief lies in the diminishing size of the producers which have been brought in during the past week.

Pipe Line Runs

Actual pipe line runs for the week from the Arkansas Field averaged 249,850 bbls. a day, of which 206,560 bbls. was heavy oil from the Smackover district. Previous to the development of the deep sand, the heavy oil production averaged approximately 60,000 bbls. a day, showing an increase of more than 140,000 bbls. a day as a result of the deep development. Total production from the Arkansas and Louisiana fields for the past week averaged 300,861 bbls. a day, an increase of 77,511 bbls. a day over that of the previous week and distributed as follows:

Arkansas	
Smackover heavy	206,560
Smackover light	30,445
El Dorado	9,345
Nevada County	1,570
Stephens	1,930
Total	249,850
Louisiana	
Bellevue	3,820
Caddo light	9,670
Caddo heavy	2,240
Cotton Valley	9,446
De Soto and Red River	4,255
Elm Grove	630
Haynesville	14,030
Homer	6,920
Total	51,011
Total both fields	300,861
Increase	77,511

Among the big wells in the Smackover Field which have sanded up on account of defective casing is the Imperial Oil & Gas Products Co.'s 25,000-bbl. producer, No. 2 Murphy in Section 9-16-15. The well stopped flowing but will probably be brought back as has been the case in several similar instances. The Roxana Petroleum Corp.'s well, estimated as good for 48,000 bbls., is still choked down to 4,000 bbls. a day, and The Texas Co.'s No. 9 Graves in Section 3-16-15, is flowing at the rate of 10,000 bbls. a day through to ⅞-inch chokes. This well was completed last week with an initial production estimated at 5,000 bbls., went dead and was brought back in with greatly increased production.

Reporting on a showing of gas in a test drilled by the Free Run Oil Co. on the Holmes-Yazoo County line in Mississippi, Dr. E. N. Lowe, State geologist, states that the gas is not sufficient to be of commercial value. Dr. Lowe advises further drilling in the hope of penetrating the Ripley formation.

The Yount-Lee Oil Co. and the Proven Production Co., operating jointly, have completed a 25,000,000-foot gas well on the Agurs lease in Section 6-16-16, 2 miles northeast of Bethany in Caddo Parish. The well is 3½ miles south and a half mile east of the Gulf Production Co.'s big gas well on the Waterman lease, and 2 miles southeast of the Gulf's Barlow A-1, which came in several years ago making a small amount of oil and is still oozing oil at the surface. The Agurs well was completed in the deep sand at 2,716 feet and may be a continuation of either the Bethany or Waskom districts, as it lies about half way between them.

Union County Completions

The Crusader Pipe Line Co.'s No. 5 Graves, Section 3-16-15, got sand at 2,365-90 feet and is good for 400 bbls.

The Humble Oil & Refining Co.'s No. 6 Flannigan, Section 6-16-15, was a hole full of salt water with a showing of oil at 2,382-92 feet.

The Humble Oil & Refining Co.'s No. 7 Pate, in Section 10-16-15, was drilled 4 feet deeper and increased from 800 bbls. to 1,500 bbls. from sand at 2,374-83 feet.

The Gulf Refining Co.'s No. 5-C LeCroy, Section 16-15-15, found the pay at 2,488-97 feet and flowed 300 bbls. by heads in the first 15 hours.

Mules, plows and scrapers and a small army of laborers were moved into the field last week by trainload for the purpose of erecting earthen storage to take care of the surplus production from the deep sand. It is estimated that over 200 wells may be completed within the next three weeks and those of them that are within the productive area will make possible to bring the Smackover peak up to 300,000 bbls. if their average initial production comes up to expectation.

The Smackover deep sand area received a setback on Tuesday when salt water wells began to take the place of gusher oil producers. Four important deep sand tests were brought in, of which two looked like failures and a third found salt water but was to be drilled deeper. Only one oil well was completed on that day.

The Standard Oil Co.'s No. 2 Powell, SE cor. NW, Section 34-15-15, about five-eighths of a mile northeast of the nearest production (Clark & Melat's No. 1, NE cor. Section 4-16-15) got a sand at 2,303-09 feet, elevation 88 feet) and got salt water. Not satisfied that the well was a failure the production department decided to drill it deeper.

Ramage and others' No. 7 J. H. James, SE cor. NE NW, Section 6-16-15, got a sand at 2,394-2,400 feet and the well produced 400 bbls. of fluid the first 24 hours, of which 90 per cent was water. This virtual dry hole, is the most northeasterly of the completed wells. It is about 1⅜ miles west of production in Section 5-16-15.

The Roxana Petroleum Corp.'s No. 2 Murphy, NE cor. SE SE, Section 7-16-15 cored 3 feet of sand at 2,362-68 feet which showed oil. It was drilled to 2,429 feet and plugged back to 2,383 feet. There was 10 feet of sand at 2,362-72 feet. A slotter was run and the casing perforated but the hole filled only with salt water from the same sand that had cored an oil showing.

The Sun Oil Co.'s No. 3 Hays, E half NW, Section 3-16-15 was a 1,200-bbl. initial producer from sand at 2,358-67 feet.

The Arkansas Fuel Oil Co. junked and abandoned No. 4 Ferguson, Section 6-16-15, at 2,403 feet.

Grimes & Jones completed No. 8 Van Hook, Section 7-18-14, pumping 30 bbls. at 2,195 feet.

The Gulf Refining Co. killed a blowout and abandoned No. 6 Berry, Section 8-16-15, at 1,835 feet, and completed No. 14 Hardy-Murphy, Section 4-16-15, flowing 10,000 bbls. at 2,352 feet.

Natural Gas & Petroleum Co.'s No. F-1 J. Murphy, in Section 9-16-15, is flowing 2,000 bbls. at 2,464 feet.

The Standard Oil Co. completed No. 17 J. H. Alphin, in Section 2-16-15, pumping 65 bbls. at 2,007 feet.

The Texas Co. completed No. 7 Graves, Section 3-16-15, flowing 6,000 bbls. at 2,383 feet.

Hickman's No. 9 Graves, SE SW NW SE, Section 3-16-15, sand 2,380-87 feet, is now flowing 1,500 bbls. of oil.

Humble Oil & Refining Co.'s No. 6 Umstead, near NE cor. Lot No. 1, NE Section 5-16-15, sand 2,382-95 feet, is flowing 1,000 bbls.

Humble Oil & Refining Co.'s No. B-2 Flenniken, Section 9-16-15, sand 2,460-72 feet, is flowing 900 bbls.

Natural Gas & Petroleum Co.'s No. F-1 Murphy, SW cor. NE SW, Section 9-16-15, sand 2,457-64 feet, flowing 500 bbls.

Standard Oil Co.'s No. 13 Umstead, SW SE SE, Section 33-15-15, blew in at 2,350 feet making 40,000,000 feet of gas and spraying b. s.

Crawford & Sebastian's No. 6 Graves, NW cor. NE SW NE, Section 3-16-15, sand 2,376-82 feet, flowing 5,000 bbls.

Gulf Refining Co.'s No. 13 Hardy-Murphy, NE SW, Section 4-16-15, sand 2,351-60 feet, gauged 6,840 bbls. with the bailer in the hole; building standard rig to fish.

Humble Oil & Refining Co.'s No. 5 Flannigan, NE cor. Lot 1, NE Section 6-16-15, sand 2,382-87 feet, flowing 2,500 bbls.

Natural Gas & Petroleum Co.'s No. F-2 Murphy, NE cor. SW NE SW, Section 9-16-15, sand 2,489-94 feet, flowing 1,000 bbls., 70 per cent salt water.

Sam Cook's No. 1 Murphy, SE cor. NW NE SW Section 9-16-15, sand 2,467-86 feet, flowing 6,000 bbls.

Imperial Oil Products Co.'s No. 6 Murphy, SE cor. SW SW NE, Section 9-16-15, sand 2,442-57 feet, flowing 10,000 bbls.

Humble Oil & Refining Co.'s No. 7 Pate, CSL NW NE, Section 10-16-15, sand 2,374-79 feet, tested 800 bbls., pulling liner to deepen.

Simms Oil Co.'s No. 4 Cook, C NE NE Section 6-16-15, gauged 31,000,000 feet dry gas, sand 2,354-64 feet.

Pure Oil Co.'s No. 2 Dumas, NW SW Section 16-16-15, tested salt water, sand 2,481-85 feet.

Ouachita County

There were 18 completions in Ouachita County during the past week, with an aggregate initial production of 7,240 bbls.

H. E. Clark completed No. 3 Hodges, Section 26-15-17, pumping 45 bbls. at 2,324 feet.

Clark & Melat completed No. 1 Murphy, Section 4-16-15, flowing 1,800 bbls. at 2,343 feet.

The Cumberland Petroleum Co. completed No. 1 Elliott, Section 23-15-17, flowing 25 bbls. at 2,297 feet.

Eberhardt and others completed No. 1 Gibson, Section 27-15-17, flowing 25 bbls. at 2,347 feet.

The El Dorado Union Oil Co.'s No. 4 LaGrone, in Section 36-15-17, is flowing 40 bbls. at 2,272 feet.

The Gulf Refining Co. completed No. 3 R. Bennett, in Section 33-15-15, flowing 1,200 bbls. at 2,382 feet; abandoned No. 1 Burkett, in Section 7-16-16, at 3,018 feet; completed No. 6 B. Goodwin, in Section 32-15-15, flowing 3,000 bbls. at 2,382 feet; got salt water and abandoned No. 5 Reynolds, Section 23-15-17, at 2,410 feet, and abandoned derrick for No. 6 Reynolds, in the same section.

Gossett and others got salt water and abandoned No. 1 Allen-Currey, in Section 33-14-19, at 2,217 feet.

The Gulf Refining Co.'s No. A-14 Werner, in Section 36-15-17, is pumping 40 bbls. at 2,397 feet.

The Humble Oil & Refining Co. completed No. B-2 Berg, in Section 30-15-15, pumping 30 bbls. at 2,020 feet.

Hunt and others completed No. A-7 Myatt, in Section 22-15-17, pumping 35 bbls. at 2,404 feet.

The Louisiana Oil & Refining Corp. completed No. 1 Myatt, Section 22-15-17, pumping 30 bbls. at 2,405 feet, and No. 2 Myatt, same section, pumping 30 bbls. at 2,334 feet.

Whittiken and others completed No. 3 Green, in Section 23-15-17, pumping 30 bbls. at 2,358 feet.

Woodley Petroleum Co.'s No. 2 Umstead, Section 4-16-15, is flowing 900 bbls. at 2,356 feet.

Bossier Parish

The Humble Oil & Refining Co. completed No. B-4 Bliss & Wetherbee, in Section 14-19-11, pumping 15 bbls. at 287 feet.

Caddo Parish

The Gulf Refining Co. moved rig and abandoned No. 220 Ferry Lake, in Section 14-20-16.

La Salle Parish

The Bur Ban Oil Co. junked and abandoned No. 2 Urania, Section 21-11-2e, at 2,740 feet.

Miller County, Arkansas

Dr. F. F. Nigh, and others abandoned No. 1 Thomas, in Section 12-20-28 at 3,003 feet.

Webster Parish

The Alabama Petroleum Co. completed

White Leadership Won by Performance

White Trucks have won their position of leadership in the oil industry solely upon performance. Their dependability has been the deciding factor in the purchase of more than 9,000 Whites by leading oil companies in all sections of the country. Far more Whites serve the industry than trucks of any other high-grade make.

Year after year scores of oil companies continue to add to their White Truck fleets. A single company which has standardized on White Trucks operates a fleet of 1,738. These companies are astute buyers, demanding full value for every dollar they spend, and getting it with every White Truck they buy.

The superiority of White equipment in the petroleum industry holds good consistently through all the divisions. Whether the number of trucks required is many or few, White dependability insures uninterrupted transportation to the producer, marketer, refiner and pipe line builder. Whatever the conditions of road, load or weather White Trucks keep rolling.

Let us send you free the 1925 White Roll Call Booklet, listing 837 concerns in all lines of business operating 31,093 White Trucks in fleets of ten or more.

THE WHITE COMPANY, Cleveland

WHITE TRUCKS

No. B-3 Pardee, in Section 24-21-10, pumping 200 bbls. at 2,518 feet.

Crusader Oil Production Co. completed No. B-15, in Section 25-21-10, swabbing 800 bbls. at 2,521 feet.

The Humble Oil & Refining Co. completed No. B-14 Bodcau, Section 13-21-10, pumping 120 bbls. at 2,516 feet, and No. B-17 Bodcau, Section 28-21-10, pumping 20 bbls. at 2,585 feet.

The Louisiana Oil Refining Corp. completed No. 3 Crichton, Section 21-21-10, pumping 140 bbls. at 2,538 feet.

The Ohio Oil Co. completed No. 18 Bodcau, Section 13-21-10, pumping 200 bbls. at 2,500 feet, and No. 1 Cox, in Section 15-21-10, pumping 200 bbls. at 2,544 feet. They also completed No. 4 Gray, Section 26-21-10, pumping 150 bbls. at 2,555 feet, and No. 7 Gray, same section, pumping 150 bbls. at 2,576 feet. They completed No. 1 Sidney, Section 16-21-10, pumping 100 bbls. at 2,534 feet.

The Simms Oil Co. completed No. 1 Burrell, Section 34-23-10, estimated making 50,000,000 dry gas at 2,638 feet.

Drilling Operations

Union County, Arkansas

J. A. Alphin has set 10-inch casing at 502 feet in No. 1 Fee, in Section 4-16-15; Amerada Petroleum Corp.'s No. 3 Galloway, Section 4-16-15, drilling at 2,229 feet; No. 4 Galloway cemented 8¼-inch casing at 2,337 feet; No. 5 Flenniken Section 6-16-15, set 10-inch casing at 485 feet; No. 6 Flenniken, Section 6-16-15, rigging up; No. 1 Lyell, Section 3-16-15, drilling 2,025 feet; No. 5 Lyell, Section 3-16-15, sidetracking 200 feet, drill stem at 1,784 feet; No. 6 Lyell, Section 3-16-15, began drilling April 13, now drilling 50 feet.

Arkansas Fuel Oil Co. has derricks up for No. 1 Burton, in Section 33-16-15, and No. 8 LaGrone, Section 1-16-17; junked and abandoned; No. 4 Ferguson, Section 6-16-15; set 10-inch casing at 300 feet in No. 5 Ferguson, in Section 6-16-15; No. 5 Alphin, Section 11-16-15, rigging up; No. 7 LaGrone, Section 1-16-17, drilling at 2,274 feet; No. 3 Murphy, Section 8-16-16, drilling at 1,549 feet; No. 4 Murphy, Section 8-16-16, is a location; Nos. 1 and 2 Scott, Section 1-16-17, will be deepened with tools; No. 1 Scott is now drilling deeper with tools at 2,275 feet and No. 2 Scott will deepen with tools at a depth of 2,259 feet.

The Arkrado Oil Co.'s No. 5 Hatfield, Section 7-16-15, arranging to cement hole at 2,562. Bailey & Trimble have set 10-inch casing at 498 feet, now drilling at 1,250 feet in its No. 3 Lawton, Section 10-16-15. Barnsdale & Foster's No. 4 J. Murphy, Section 17-16-15, cemented 6-inch casing at 2,494 feet, total depth 2,496 feet. Belmont and others' No. 1 Jones, Section 21-16-15, derrick; Berry and others' No. 1 Union Sawmill, Section 14-19-11, shut down at 1,775 feet. In Section 16-17-17, Bradley-Cazart's No. 1 Pate, waiting orders at 2,367 feet. Broderick & Calvert's No. A-3 Murphy, Section 8-16-15, drilling at 2,389 feet.

Carrigan and others' No. 1 Wingfield, Section 5-16-15, repairing rig at 2,010 feet. In Section 7-16-15, Chambers Drilling Co.'s No. 1 Carroll, has derrick erected. In Section 25-16-16, Cherokee Petroleum Co.'s No. 7 Burton, waiting on standard rig at 2,032 feet. J. W. Clark is rigging up on No. 6 Cook, Section 17-16-15. J. W. Clark's No. 1 Palmer, Section 9-16-15, pulling liner to deepen at 2,100 feet; No. 3 Palmer, Section 9-16-15, cemented 6⅝-inch casing at 2,451 feet; No. 4 Palmer, Section 9-16-15, derrick. Clark & Melat's No. A-2 Wells, Section 15-16-15, coring in sand at 2,419 feet.

Coates & Sewell have cemented 6-inch casing at 2,421 feet, in their No. 1 Bilyew, Section 8-16-15; setting 6-inch casing at 2,429 feet in No. 2 Bilyew, Section 8-16-15. In Section 36-17-16, Coates & Sowell's No. 1 Springer, tested salt water, now waiting orders at 2,547 feet. In Section 9-16-15, Sam Cook's No. 1 Murphy, set 8-inch casing at 660 feet; 6-inch casing at 2,455 feet. Crawford & Sebastian's No. 5 Graves, Section 3-16-15, cemented 5⅓-inch casing at 2,348 feet, bailing to test 6 feet of sand at 2,382 feet in No. 6 Graves, same section; drilling at 1,585 feet in No. 6 James, Section 6-16-15.

Crusader's Operations

In Section 3-16-15, Crusader Oil Producers Co.'s No. 5 Graves, swabbing to test 31 feet of sand at 2,399 feet. This well was estimated as a 20,000,000-foot gasser with a spray of oil with 12 feet of sand, at a depth of 2,380 feet. Its No. 7 Graves, Section 3-16-15, is drilling at 1,980 feet. Crusader Oil Producers Co.'s No. 5 Lyell, Section 3-16-15, set 15½-inch casing at 60 feet, 10-inch at 500 feet.

H. L. Dale is drilling at 2,030 feet in No. 2 LeCroy, in Section 17-16-15; W. A. Dellmeyer's No. 1 Ezell, Section 13-17-15, waiting orders at 2,212 feet. In Section 4-19-16, Doern and others' No. 1 Bradley, waiting orders at 2,512 feet. Chal Daniels' No. 3 Tatum, Section 7-16-15, arranging to deepen, total depth 2,009 feet. This well was formerly completed in May, 1923, estimated as 8,000,000 feet of gas and 800 bbls. of oil. Eason and others' No. 1 Palmer, Section 9-16-15, lost hole, will skid derrick, total depth 2,075 feet; No. 2 Palmer, Section 9-16-15, drilling at 2,200 feet; No. 3 Palmer, Section 9-16-15, drill stem stuck at 2,270 feet; No. 4 Palmer, Section 9-16-15, drilling at 2,300 feet.

The Federal Petroleum Co.'s No. 4 Childs, Section 8-16-16, drilling at 2,265 feet; in Section 6-16-15, Federal Petroleum Co.'s No. J-5 Flenniken, sidetracking drill stem at 2,259 feet; Federal Petroleum Co.'s No. A-7 Lawton, Section 10-16-15, drilling at 2,395 feet; No. A-8 Lawton, same section, is a derrick; No. A-9 Lawton, same section, rigging up; No. A-10 Lawton, same section, is a derrick; No. A-11 Lawton, same section, is a location; No. B-5 and B-6 Lawton, same section, are rigging up, and No. B-7 Lawton, derrick.

In Section 12-16-16, Field Operators Co.'s No. 1 Kane, waiting orders at 2,022 feet; Gilliland Oil Co.'s No. A-2 Hodges, Section 8-16-16, waiting on standard rig, 2,260 feet; Grimes & Jones' No. 4 Van Hook, Section 7-18-14, drilling at 1,800 feet.

Gulf Co.'s Work

The Gulf Refining Co.'s No. 8 J. H. Alphin, Section 10-16-15, cemented 6-inch casing at 2,387 feet; No. 9, J. H. Alphin, same section, drilling sand at 2,282 feet. In Section 7-16-15, No. 1 J. A. Berry, arranging to deepen at 2,042 feet. This well was formerly completed in June, 1923, estimated at 12,000,000 feet of gas and 25 bbls. of oil, now drilling at 2,060 feet; No. 6 Berry, Section 8-16-15, has been abandoned at a depth of 1,835 feet; No. 7 Berry, same section, set 15½-inch casing at 70 feet, 10-inch at 590 feet; No. 8 Berry, same section, set 15½-inch casing at 85 feet; in Section 5-16-15, No. 9 Flanigan, drilling shale at 2,305 feet; in Section 6-16-15, No. 2 Holliway, waiting on standard rig, 4 feet of sand, 750 bbls. oil at 2,261 feet. In Section 16-16-15, No. 5 LeCroy, cemented 6-inch casing at 2,488 feet, total depth 2,491 feet; No. 6 LeCroy, same section, drilling 2,132 feet. In Section 5-16-15, No. 15 Hardy Murphy, drilling 1,920 feet. In Section 4-16-15, No. 16 Hardy Muryh, drilling 1,950 feet; No. 19 Hardy Murphy, same section, derrick. In Section 3-16-15, Nos. 20 and 21 Hardy Murphy, are rigging up; in Section 4-16-15, derrick are up for Nos. 22 and 23 Hardy Murphy; in Section 8-16-15, No. 4 G. E. Murphy, drilling at 2,045 feet; No. 17 Murphy, in Section 3-16-15, started drilling on April 10, now drilling 150 feet; No. 18 Murphy, same section, began drilling on April 9, and set 10-inch casing at 297 feet; No. 8 T. C. Murphy, Section 9-16-15, sidetracking core barrel at 2,289 feet; No. 11 T. C. Murphy, same section, drilling 2,276 feet; No. 12 T. C. Murphy, same section, set 10-inch casing at 298 feet. A location has been made for No. 4 L. Werner, Section 8-16-16; No. 31 L. Werner, Section 5-16-16, is drilling hard gray sand at 3,328 feet.

Hickman and others' No. 9 Graves, Section 3-16-15, tested dry with 5 feet of sand at 2,380 feet; drilled to 2,387 feet and still in sand, arranging to bail again; cemented 6-inch casing at 2,352 feet in No. 10 Graves, same section. In Section 6-16-16, Higgens Oil & Fuel Co.'s No. 1 McGraw, rigging up; Hollifield and others' No. 3 Giller, arranging to deepen at a depth of 1,984 feet; in Section 10-16-15. This well was formerly completed on August 23, 1923, swabbing 500 bbls.; drilling at 100 feet in No. 10 Giller, Section 11-16-15. In Section 8-16-16, Houston Oil Co.'s No. 1 Parks, setting short string of 5⅞-inch casing at 2,339 feet.

In Section 3-16-15, Humble Oil & Refining Co.'s No. 4 Flenniken, cemented 6⅝-inch casing at 2,382 feet, total depth 2,396 feet, preparing to set liner to test 5 feet of sand; No. B-3 A. Flenniken, Section 9-16-15, drilling 2,195 feet; No. B-4 A. Flenniken, same section, drilling 2,343 feet; No. B-5 A. Flenniken, same section, drilling 2,025 feet. In Section 10-16-15, No. 7 Pate, cemented 6⅝-inch casing at 2,370 feet, total depth 2,380 feet; No. 8 Pate, same section, is a location. In Section 3-16-15, No. B-3 Goodwin, is rigging up.

Imperial's Drilling

In Section 9-16-15, Imperial Oil & Gas Products Co.'s No. 3 Murphy, crater formed and derrick is down total depth 2,402 feet; No. 4 Murphy, same section, drilling 2,100 feet; No. 5 Murphy, same section, rigging up; No. 6 Murphy, same section, cemented 6⅝-inch casing at 2,415 feet.

The Johnson Drilling Co. is waiting on standard rig, 8 feet of sand, 1,500 feet oil, total depth 2,269 feet; in No. 1 Anderson, Section 1-16-17; Ab Jones' No. 1 Tatum, Section 7-16-15, arranging to deepen at 2,008 feet. In Section 16-16-15, E. M. Jones' No. 1 Cook, drill stem is stuck at 2,125 feet; No. 2 Cook, same section, arranging to skid derrick 2,210 feet; No. 3 Cook, same section, drilling 2,200 feet.

Keen & Wolf, are waiting on standard rig at 2,424 feet in No. 1 J. S. Murphy, Section 9-16-15; No. 2 J. S. Murphy, cemented 8-inch casing at 1,060 feet; total depth 1,706 feet. This well is located in 9-16-15; No. 3 J. S. Murphy, same section, rigging up; in Section 3-16-15, Kinnebrew and others' No. 5 Williams, drilling 2,285 feet; Laurel Oil & Gas Co.'s No. 1 Houston, Section 12-16-15, drilling rock at 1,200 feet; Liberty Oil Co.'s No. 1 Davis, Section 3-16-14, waiting orders 2,502 feet.

The Lion Oil & Refining Co. has derrick up for No. 1 Bilyew, Section 8-16-15, and for No. 6 Flinniken, Section 10-16-15, No. 8 Graves, in Section 3-16-15, No. 3 Hays, Section 4-16-15, No. G-2 Murphy, Section 8-16-15, Nos. 2, 3, and 4 Hardy Murphy, in Section 9-16-15; No. A-5 Lawton, in Section 10-16-15, drilling at 1,860 feet; No. A-6 Lawton, same section set 10-inch casing at 512 feet; No. B-3 Lawton same section, rigging up; No. 3 D. Murphy, Section 8-16-15, drilling 2,483 feet; No. E-1 Murphy, set 10-inch casing at 486 feet, located in Section 8-16-15; No. C-1 Murphy, same section, drilling 2,000 feet; No. H-1 Murphy, in Section 9-16-15, set 10-inch casing at 453 feet.

Lyles and others' No. 8 Fee, Section 3-16-15, cemented 10-inch casing at 469 feet. The Magnolia Petroleum Co. has derrick up for No. 5 Campbell, Section 13-16-17, also for No. 1 N. J. Murphy, in 35-16-15, and for No. 2 Scott, Section 12-16-17. It is fishing for drill stem at 1,997 feet; No. 2 Bradford, Section 8-16-15; No. 1 Chandler, in Section 4-19-14, cemented 8¼-inch casing at 2,160 feet, total depth 2,223 feet; No. 1 Freeman, Section 7-16-16, cemented 6⅝-inch casing at 2,634 feet; No. 3 Harris, Section 16-16-16, cemented 4½-inch casing at 2,610 feet, total depth 2,638 feet; No. 4 Powell, in Section 19-16-15, drilling at 2,525 feet; No. 2 Stout Lumber Co., Section 1-16-17, setting 6⅝-inch casing at 2,215 feet.

Matthews and others' No. 1 Teele, Section 11-19-12, cemented 5⅓-inch casing 2,654 feet, total depth 2,661 feet. The Mazda Oil Co.'s No. B-2 Lawton, in Section 10-16-15, set 10-inch casing at 501 feet; No. R-2 Lawton, same section, rigging up. R. J. McMurray's No. 1 Hill, Section 5-16-15, set 10-inch casing at 503 feet; Murdock and others' No. 4 Bilyew, Section 8-16-15, drilling at 2,317 feet; No. B-1 Bilyew, in Section 8-16-15, rigging up; O. G. Murphy's No. 2 Murphy, Section 9-16-15, are bailing 6-inch casing at 2,426 feet.

Natural Gas and Petroleum

Natural Gas & Petroleum Co.'s No. 1 Bilyew, in Section 9-16-15, drilling at 1,900 feet; No. 2 Bilyew, same section, trying to get returns, 960 feet; No. 3 Bilyew, drilling 2,220 feet; No. 4 Bilyew, shut down 1,746 feet; No. 5 Bilyew,

(Continued on Page 148)

East Central Texas

By Staff Correspondent

CORSICANA, Tex., April 18.—Once more the Mexia fault has disappointed those who have spent much money in acreage and in drilling operations northeast of the Powell Field. Tests in Henderson County may be regarded as definitely dry so far as the Woodbine sand is concerned, and that is the sand which was expected to develop one or more big fields northeast of Powell. Penn, the Texas Pacific Coal & Oil Co. and Humphreys Byd Oil Co.'s No. 1 Murphy, in Henderson County, which cored salt water, in the Woodbine sand at 3,170 feet, was continued on down, but when it had reached a depth of 3,250 feet without finding oil or gas oil men generally gave it up as a hopeless job. Cranfill and others' test on the Springer farm, Gardner survey, was abandoned as dry at 3,300 feet. In Kaufman County Cranfill and others' No. 1 O. P. Duff, Barbo survey, was abandoned as dry at 3,280 feet.

While the Penn and others' well was a great disappointment it served a good purpose in definitely locating the Mexia fault, and proving the position of the Woodbine sand in that area. Geologically it ran true to form. It also helped to assure many that oil in great quantity will not be found northeast of the Powell Field. The Richland Pool is the lowest producing field along the Mexia fault. The sand is 25 feet lower than the Powell Field, but it is 175 feet higher than in Henderson County.

The chances of finding a big field along the Mexia fault are remote, but so much money has been expended in acreage that more tests will be drilled. The Humble Oil & Refining Co. is expected to test some of its big block lying between Mabank and Kemp.

Before the Penn well cored the Woodbine sand, as high as $800 an acre was offered for royalties, and not a lease could be had within 2 miles of the well for less than $300 an acre.

Seek the Edwards Lime

The territory south of the Mexia Field and along the Balcones fault will receive the next wildcat play. Tales are told of seepages which were discovered recently at points where they were not apparent a few months ago, which have caused optimists to believe that somewhere near at hand there is a pool of oil. Foster & Reiter have started a test on the Williams farm, Robertson survey, in Falls County, 8 miles southwest of the town of Kosse and Harrison and others have started drilling on the Thompson farm, Mitchell survey, 4 miles southwest of Kosse. Both these tests are bound for the Edwards limestone from which formation the wells in the Luling Field in Caldwell and Guadalupe counties are producing. In Milam County the Magnolia Petroleum Co. has started drilling on the Kime block, Carson survey, and the Simms Oil Co. has made a location on the McKinney farm, Tyler survey, and the Stidham farm, Jones survey. Milam has had some recent deep sand tests, which showed nothing. The Sinclair Oil & Gas Co. drilled to 3,957 feet on the

(Continued on Page 156)

Oil and Steel—*both burn*

LEAVE steel tanks exposed to the atmosphere. They will burn just as surely as the oil is burning in the tanks pictured above.

All burning or combustion is simply oxidation. When oil burns, it takes on air, or oxidizes. That is just what metal does. The oxidation of metal, however, is slower (it is slow combustion, while the burning of oil is rapid combustion) but it is just as sure.

How to combat oxidation

Modern methods of fighting oil fires involve keeping air from reaching the flames. A similar method is used to combat the costly burning or oxidation of tank metal. This method is to *keep* every detail of metal equipment sealed against air and moisture with a film of tough, long-wearing, red-lead paint.

Over and over again pure red-lead paint proves its value in completely protecting and lengthening the life of iron and steel oil equipment. Complete protection, however, means more than coating the metal with red-lead when you first put it into service. It calls for regular repaintings afterward. It demands always keeping an unbroken film of paint between the metal and air and moisture. When you give such protection, you prolong the life of your oil tanks indefinitely. Also, you can maintain your tanks *at a minimum painting cost per year*.

Oil operators find that Dutch Boy red-lead gives the metal in their tanks full protection. Dutch Boy red-lead is pure red-lead. Mixed with pure linseed oil and spread on the surface of clean metal, it sticks tight. It is impervious to air and moisture. It makes an elastic paint covering that expands and contracts with heat and cold without cracking.

Litharge

For oil refining you want litharge of correct physical character and extreme chemical purity. Such litharge is made by the makers of Dutch Boy red-lead and Dutch white-lead. At all times you can rely on its unvarying uniformity.

Our nearest warehouse can give you quick shipment in any quantity you desire.

You can get Dutch Boy red-lead in both paste and liquid forms. The liquid comes in the natural orange-red color, light and dark green, light and dark brown, and black. The paste comes in the natural color and can be shaded to browns, greens, black, etc.

Paint also cuts evaporation

When you want finishing coats of light-colored paint to reduce heat-absorption and decrease oil evaporation, use Dutch Boy white-lead on top of first coats of Dutch Boy red-lead.

Dutch Boy white-lead also has the properties that enable it to resist the penetration of air and moisture.

Write to our Technical Service Department at our nearest branch. Our specialists will be pleased to give you full information about metal protective paints to meet your specific requirements.

NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

Rocky Mountain Area

By F. B. Taylor

Repollo Oil Co. gets oil showing in shale at Rex Lake, Wyoming. La Barge-Dry Piney district attracting attention. New operations at Fort Collins, Colorado. Montana production for four years. Midwest gets four completions in Salt Creek, one for 700 bbls. Torchlight Field, Big Horn Basin, lease.

CASPER, Wyo., April 18.—The Repollo Oil Co., Mammoth Oil Co. subsidiary, struck a good showing of oil in the shale in its well in the Rex Lake Field in the southern part of Wyoming. The bit is still some distance above the sand which proved productive in the two wells drilled on the structure by the Ohio Oil Co. Indications for production in the Repollo well are considered good. The Rex Lake Field has been shut in practically all winter; field runs two weeks ago showed average daily shipments of 100 bbls., but since that time no shipments have been reported.

LaBarge District

The Midwest Refining Co. test in the Cretaceous or LaBarge district in the southwestern corner of the State is still above the sand, having been delayed by a caving hole. This is the well which found considerable oil in a pocket in the shale at a shallow depth, occasioning much excitement. In the same field, the Newlon interests are down over 800 feet in No. 3, and are preparing to drill a deep test on Section 10. The Newlon interests have several shallow wells in the field which are furnishing fuel for drilling operations. The Transcontinental Oil Co. picked up a second gas sand in its well in the LaBarge Field, but this proved to be only 5 feet in thickness and the flow was soon exhausted. The first gas sand, encountered at 525 feet, was 40 feet thick and the gas flow considerable. The Wyotah Oil & Gas Co. is shipping in material for a rig and tools and casing.

According to reports from Kemmerer, the LaBarge-Dry Piney district is attracting the attention of the larger companies. Until recently, most of the development work in this district was carried on by local organizations. The Ohio Oil Co. and the Marland Oil Co. are said to have scouts in the field, and the Doheny interests are reported as scheduled for a visit to the Kemmerer district during the month.

Torchlight Field

A lease on 445 acres of land in the Torchlight Field in the Big Horn Basin of Wyoming went to Mrs. Flora O. Schendel as the highest competitive bidder for the tract which was offered by the Interior Department at Washington the past week. This tract lies inside the escarpment of the Torchlight structure and is Government land. The former holders failed to complete the terms of the contract and the Government assumed possession, placing the tract open for lease. Mrs. Schendel's bid was $290 bonus and a sliding royalty from 12½ per cent to 33⅓ per cent, depending on the amount of production per well.

The Consolidated Royalty Oil Co. is contemplating an increase in the par value of the stock. At present, the capitalization of the company is $5,000,000 divided in 5,000,000 shares of $1.00 par value. The proposed change would reduce the number of shares to 500,000, and increase the par value to $10.00. The cost of handling $1.00 par stock on the market is much greater in proportion than the handling of $10.00 stock, and the latter is more acceptable as collateral. The matter will be voted upon by the stockholders. The Consolidated Royalty has declared its regular quarterly dividend of 3 per cent, to be paid April 20. During 1924, $468,056.88 was paid out in dividends.

Fort Collins

The Carter Oil Co. is ready to spud in on its No. 1 King, on the Fort Collins Dome in Northern Colorado. The well will be located on Section 17-8-68 on the northern end of the structure. The Union Oil Co. is making preparations for the immediate drilling of two wells to offset the Carter locations. These two wells, when in operation, will make 12 wells, underway or completed, on the Fort Collins structure by the Union Oil Co. of California. The same company has put seven rigs on the Wellington Dome.

The Producers & Refiners Corp. expects to spud in this week on its test well on the Buckeye structure, 4 miles northwest of the Wellington Dome. The well is on a "community lease" which calls for the drilling of a well to every 20 acres if the test well proves a good producer.

Montana

During the month of February, the Continental Oil Co., which operates the pipe line from the Cat Creek Field in Montana, received from wells, for transportation, a total of 99,275 bbls. of crude oil. In addition, 24,215.69 bbls. were shipped from storage. at the end of February, the Continental had in storage for its own account 160,922 bbls. of Cat Creek crude, in storage for others 3,661 bbls., while unfilled storage to the amount of 146,126 bbls. was reported.

During the same period, the Illinois Pipe Line Co. received for transportation 108,666 bbls. of crude from wells in the Kevin Sunburst Field. This shows actual production of the Kevin Sunburst Field to exceed that of the Cat Creek district. At the end of February, the Illinois reported 6,254 bbls. of crude oil in storage for others. The annual reports of the two companies showed 1,083,506 bbls. of oil transported by the Illinois Pipe Line Co. from the Kevin Field during the year 1924, and 1,595,163 bbls. transported from the Cat Creek Field by the Continental. Total pipe line shipments from the two fields for the year were reported as 2,678,669 bbls.

The Montana State Board of Equalization has prepared a statement of the past four years of oil production in that State. The record for all fields that have produced oil in Montana is as follows:

	Barrels	Value
Cat Creek, 4 years	11,251,890	$7,162,474
Sunburst, 3 years	1,517,924	1,657,923
Devil's Basin, 3 years ..	9,950	5,268
*Elk Basin, 4 years ...	91,031	54,670
Soap Creek, 4 years ...	23,794	43,814

*Elk Basin lies on the State line and most of the productive area is in Wyoming and therefore the Montana wells only show a small percentage of the whole.

The Mutual Oil Co. reports an investment of $490,194.99 and the operation of a pipe line from the Cat Creek Field to Winnett with a length of 20.6 miles. This line consists of 20.6 miles of 4-inch pipe, 19 miles of 2-inch pipe and 1¼ miles of 3-inch pipe. The Illinois Pipe Line Co. reports an investment of $271,110.19 and has 16.64 miles of 6-inch pipe, 3.35 miles of 4-inch pipe, 41.99 miles of 3-inch pipe and .08 of a mile of 2-inch pipe.

The Midwest completed four wells in the Salt Creek Field the past week. The Wyoming Associated found production on Section 30-40-78 in the second Wall Creek sand at 2,155 feet that made 66 bbls. The same company found a producer good for 700 bbls. on the same section at 1,965 feet and another on Section 24-40-79 at 2,020 feet that will make about 20 bbls. It also brought in a producer at 2,073 feet on Section 19-40-78 that will make 15 bbls.

Weekly Field Runs

Salt Creek	58,450
Teapot	1,860
Big Muddy	3,610
Grass Creek	4,650
Elk Basin	930
Greybull	60
Rock River	3,250
Notches	10
Lance Creek	590
Poison Spider	80
Osage	340
Hamilton Dome	600
Lander	240
Byron	100
Pilot Butte	30
Lost Soldier	4,980
Ferris	50
Cat Creek	3,225
Sunburst	3,010
Craig	850
Fort Collins	1,340
Boulder	30
Florence	250
Tow Creek	160
Rangeley	100
Artesia	1,040
Rattlesnake	425
Hogback	530
Miscellaneous	200
Total	90,990

Colorado Wildcat Activities

The Roland Oil Co.'s deep test on the Johnson ranch, southwest quarter of Section 34-2n-64w, Boulder County, is drilling below 6,780 feet. This well has been drilling since July, 1924. The company intends to drill until it "runs out of hole" or finds the Dakota sand. In the same county the Ohio Oil Co. is below 4,670 feet in its No. 1 Prince, Section 22-1n-69w.

In Adams County the Miller Oil Co. is drilling at 1,055 feet in a test in the northeast quarter of Section 28-3-64. It is drilling for the Dakota sand.

In Arapahoe County, the Roland Oil Co.'s No. 1 Hog ranch, Section 17-5s-64w, was drilling below 1,580 feet. It found water in a sand at 1,386-1,411 feet and then went into a shale.

In Cheyenne County the California Petroleum Co. has a fishing job, having lost a bit at 3,150 feet in No. 1 Scholtz-Union Pacific land, in Section 19-16s-48w.

In El Paso County, the Roland Oil Co.'s No. 1 Ullom, Section 9-12s-62w, was drilling at 2,780 feet.

In Kiowa County the Ne-No-She Oil Co. test in Section 19-20s-46w, had reached a depth of 4,002 feet and was drilling.

In Las Animas County the Mountain States Oil Co.'s No. 1 Frisco, Section 4-34s-62w, was drilling below 780 feet.

In Montrose County the only active operation last week was the Texas Production Co.'s No. 1 J. D. Babcock, Section 18-6n-86w, which had reached a depth of 2,780 feet. It is practically an offset to the same company's No. 1 Adair, which found commercial production in shale at 2,460 feet. The test on the Babcock farm missed this productive shale. The Carter Oil Co. is running packer after unsuccessfully trying to cement off the water in its test in Section 8-4n-87w.

In Rio Blanco County, the Marland Oil Co. was drilling out the cement plug after setting 8¼-inch pipe at 1,973 feet in its test, No. 1 Scott, Section 20-1n-96w.

In LaPlatte County the Leidecker Brothers were cleaning out after recovering the casing which was dropped in the hole a few weeks ago in their No. 1 in Section 3-32-12.

In Yuma County the Hessick Drilling & Producing Co.'s No. 1 in Section 10-3s-44w, should be drilling by this time. The crew was making repairs after having rigged up. The same company's No. 1 in Section 13-1s-46w, had started drilling.

In Prowers County the Lamar Oil Co. had shut down at 2,320 feet on its No. 1 Johnson, Section 30-27-45w.

Utah's Gasser Increases

The flow of gas from the well brought in near Varnal, Utha, recently by the Utah Oil & Refining Co. of Salt Lake is estimated at 60,000,000 cubic feet daily and it is increasing, according to announcement by company geologists. The hole is 1,685 feet deep and an effort is being made to check the gas flow in some manner to drill deeper for ail.

News from Fields of Canada

By Victor Lauriston

CHATHAM, Ont., April 18.—Since the end of December, the Royalite Oil Co. No. 4 well in the Turner Valley-Okotoks Field has maintained a daily production, from drips, of between 250 and 300 bbls. of 73 gravity oil, equivalent to crude naphtha. The Royalite No. 4 marks a new stage in development work in the Canadian West, being the first well to market crude oil in anything approaching large quantities. Production is understood to be from the Madison limestone at 3,740 feet, and following the strike in mid-October great difficulties were experienced in getting the well under control; and, after this was accomplished, in marketing the production. The crude naphtha recovery was effected by leading the natural gas flow through a series of pipes, the light oil content being extracted by means of a sort of natural condensation. During the extreme cold weather recovery by condensation was possible, but with higher temperatures ruling later in the year, other methods of extraction must be provided. It is understood the Royalite Oil Co. is planning to erect a plant in the field to extract the oil content of the gas and also to purify the residual gas so that the objectionable sulphur content will be eliminated, thus enabling the company to market its production for use in Calgary. Earlier in the year difficulties were experienced in getting the crude naphtha to market, a blizzard late in December covering the trail from the field to Okotoks, a distance of 17 miles, to a depth of 5 feet. Steel storage tanks were rushed from Calgary and Sarnia and teamed to the field and as existing snow plows were inadequate to clear the roads, a special form of plow was designed to clear the snow from ditch to ditch. Additional loading and storage equipment at Okotoks and additional tank trucks relieved the strain on the inadequate storage in the field. For a portion of the winter crude deliveries at the Okotoks loading station amounted to 27,000 gallons a day. Deliveries at Okotoks, which is the rail shipping point, are now keeping pace with the production; leaving sufficient emergency storage in the field to handle 10 days production. The crude naphtha is taken in tank cars from Okotoks to the Imperial Oil, Ltd., refinery at Calgary for refining.

Royalite Oil Co. is starting two new

(Continued on Page 152)

SPANG

Careful making of the alloy steel, together with intelligent working and proper heat treatment have built up a strength and durability in SPANG Weldless Drilling Jars that cannot be found in an ordinary set of welded jars.

The SPANG Weldless Jar will wear out—certainly, like everything else—but it is most difficult to break. And it wears out only after giving a thorough, convincing service—a service that will afford you the greatest satisfaction.

Once you use the SPANG Weldless Jar you will be satisfied with no other. You can purchase a set in the size you require at any supply dealer.

Sold by Leading Supply Dealers Everywhere

WELDLESS JARS

Points of Superiority in the Spang

Excellent joints.

Greatly increased footage drilled.

Elimination of Jar Fishing jobs.

Reduction of drilling risk.

Three to five times as much service as other jars.

Increased profits.

SPANG Thread Protector

Protect your Tool Joints with SPANG Thread Protectors.

Like all Spang products they guarantee absolute satisfaction and long, durable service.

Spang and Company
Butler, Penna.

Pennsylvania-West Virginia

By D. S. Wakenight

Gordon Oil Co. gets 160-bbl. well in Washington Township, Hocking County, Ohio; East Ohio Gas Co., 25 bbls. in Monroe Township, Holmes County, and Pure Oil Co. 25 bbls. in York Township, Morgan County. Public Gas Corporation gets 20-bbl. and 15-bbl. wells in Mingo County, West Virginia.

PITTSBURGH, Pa., April 20.—Development work during the early part of the past week proved very unsatisfactory. Down to almost the close of the week nothing better than light wells were completed in any section of the Eastern Fields. The demand for crude of the Pennsylvania grade is fairly good and enough available to meet the demand. In the search for new production the southeastern Ohio fields gave the best results. The completions in the West Virginia fields furnished nothing better than light pumpers.

In the deep sand territory in the southwest quarter of Section 14, Washington Township, Hocking County, Ohio, the Gordon Oil Co. completed and shot in the Gordon sand its test on the W. L. Wagner farm. The well produced 160 bbls. the first 24 hours. The location is 600 feet east of the Carter Oil Co.'s test on the Willoughby Higgins farm. Located in Lot 9, Monroe Township, Holmes County, the East Ohio Gas Co. drilled a test on the F. C. Close farm through the same formation and good for 25 bbls. a day. This location is one-half mile west of the gas development near Welcome. In Section 33, Hardy Township, the Empire Gas & Fuel Co. has a gasser good for 1,000,000 feet at a second test on the S. S. Troyer farm. It is also showing a little oil. The location is 1,000 feet south of the first test on the same farm.

Fair Shallow Sand Pumper

In the Berea grit development in Section 25, York Township, Morgan County, the Pure Oil Co. has completed a second test on the Wilber Bush farm and good for 20 or 25 bbls. a day. The location is 650 feet southwest of the test on the Everett Fisher farm. In Section 19, the Arkansas Fuel Oil Co. drilled a test on the Roy Floyd farm through the Berea grit. It is a gasser good for 75,000 feet of gas and the location is southwest of the David Oil Co.'s test on the L. D. Stoneburner farm. In Section 35, Mill Township, Tuscarawas County, the Stillwater Oil & Gas Co. completed a test on the F. A. Morrison farm, located in advance of developments, and good for 3 bbls. a day in the Berea grit. This is the first completion this county has had in a great many months. In Section 29, Alexander Township, Athens County, the Biddle Oil & Gas Co. has completed a second test on the Frank Biddle farm, good for 10 bbls. a day. In the same township, the Carter Oil Co. is drilling a test on the D. C. Campbell farm.

Pumpers and Dusters in Noble County

In Section 10, Enoch Township, Noble County, Albert P. Sheets & Co. drilled No. 4 on the Thomas Hupp farm through the Buell Run sand, a very light pumper. In Section 36, Olive Township, C. D. Harper & Co. have a duster in the 700-foot sand at a second test on the Martha Murray farm. In the same section and township, William Patton & Co. had the same luck at a second test on the William Davis farm. In the same section, J. F. Haynes & Co. drilled a second test on the E. O. Davis farm through the same formation, showing very little oil. They also have a considerable showing of salt water.

In the northwest quarter of Section 14, Pike Township, Perry County, the Paxton Oil Co. completed a test on the Edgar Denman farm, one-fourth of a mile southeast of New Lexington, and dry in the Clinton sand. This test was drilled to a total depth of 3,410 feet. In Jackson Township, Section 11, the Southern Oil Co. is drilling a second test on the Thomas H. Welch farm. The Trinway Oil & Gas Co. is drilling at 1,600 feet on the F. Metzgaer farm. In Section 24, Washington Township, Hocking County, the Gordon Oil Co. is rigging up at a test on the James Brinner farm. In Section 14, Carter Oil Co. has started to drill on the H. W. Mowery farm. In Section 24, the Ohio Falls Oil, Gas & Supply Co. has started to drill a second test on the John Hoskins farm. In Newport Township, Washington County, W. C. Nolan has started to drill another test on his own farm.

In Section 22, Monroe Township, Perry County, Ohio, in the old Corning Field, O'Conner & Keller have completed in the Berea grit No. 19 on the Sunday Creek Coal Co.'s property, not good for more than 2 bbls. a day. In Section 22, same township, John Denman & Son are drilling No. 46 on a part of the same property. In Coal Township, the Dugan Hill Oil & Gas Co. has the rig completed for a second test on the C. A. Grummon farm. In Jackson Township, the Trinway Oil & Gas Co. is drilling a test on the Frank Metzger farm. In Pike Township, the Paxton Oil Co. is due in the Clinton sand at a test on the Edgar Denman farm.

Dry in the Clinton Sand

M. F. Whitehill & Co.'s test on the Charles Derflinger farm, in Section 22, Perry Township, Licking County, is a duster in the Clinton sand. This location is 2,000 feet north of the Carter Oil Co.'s test on the C. D. Derflinger farm. In Section 10, Enoch Township, Noble County, C. D. Harper & Co.'s initial test on the Francis Hupp farm has been drilled through the Buell Run sand and dry at a total depth of 400 feet. In Jackson Township, Worrell Brothers are due in the Buell Run sand at a test on the J. B. Hutcheson farm. In Enoch Township, H. B. Tuttle and others are drilling a test on the Benjamin Corp farm. Inside the corporate limits of Athens, Athens County, the Slauter Oil & Gas Co. has completed a test on the Slauter farm, showing for a good producer, as good producers are rated in that locality. In the same township, the Pure Oil Co. is drilling a test on the H. L. Bolin farm.

West Virginia Completions

In New Milton district, Doddridge County, Trainer & Travis have a 5-bbl. pumper in the Big Injun sand at No. 3 on the J. F. Douglass farm. In Elk district, Harrison County, the Lone Star Oil & Gas Co. has a gasser in the Gordon sand at a test on the A. C. Cookman farm. The Columbia Gas Co. has a Big Injun sand gasser on the John Walls farm, in Union district, Lincoln County. In the same district, Roy & McComas have drilled a test on the Walter Scraggs farm through the Big Injun sand and waiting for a shot. In Carroll district, the Ray Gas Co.'s test on the A. J. Banks farm is a gasser in the Big Injun sand. C. C. Wolf has a gasser in the same formation on the L. M. Thracker farm. In Jefferson district, the Cambridge Gas Co. has a gasser on the A. & M. D. Mullens farm. In Curry district, Putnam County, the United Fuel Gas Co.'s test on the James E. Johnson farm is a gasser in the same formation. In Smithfield district, Roane County, the same company's test on the T. R. Simmons farm is a fair gasser in the Big Injun sand. In Battelle district, Monongalia County, O. C. Bradley has a show for a light pumper in the Bayard sand at No. 4 on the Wise-Tennant farm.

Dry in All Sands

In Church district, Wetzel County, the Carnegie Natural Gas Co. has a salt sand gasser on the Amanda Soles farm. In Center district, the Hope Natural Gas Co.'s test on the F. D. Evans farm is dry in all sands and abandoned. In Liberty district, Marshall County, the Decem Development Co.'s No. 3 on the W. A. Evans farm is a gasser in the Big Injun sand. On the waters of Charley Creek, Grant district, Cabell County, the Aetna Oil & Gas Co. has completed a test on the C. O. Nixon farm. It is a gasser good for 200,000 feet. On the same stream, the Harshbarger Oil & Gas Co. has the rig completed for a second test on the Morris Jordan farm. On Trace Fork of Mud River, Carroll district, Lincoln County, David Fox and others have started to drill a test on the J. W. & B. L. Grass farm. On a branch of Buffalo Creek, Mannington district, Marion County, the South Penn Oil Co. drilled its old No. 20 on the E. A. Blackshere farm from the Big Injun to the fifth sand, a total depth of 3,064 feet. It is a light pumper in the lower formation.

In Smithfield district, Roane County, the United Fuel Co. has a light gasser in the Big Injun sand on the Simmons farm. In Ravenwood district, Jackson County, the Henderson Oil Co. has been shut down for some time at 870 feet at a test on the Hugh V. McCoy farm. Jackson County has very little work at this time. In Carroll district, Lincoln County, the Moore Rock Oil & Gas Co. has a gasser in the Berea grit at No. 3 on the J. Madden farm. In Curry district, Putnam County, L. R. Sweetland & Co. have started to drill a test on the E. S. Henderson farm. In Duval district, Lincoln County, W. C. Kingrey is due in the Big Injun sand at a test on the M. Goode farm.

In Big Sandy district, Kanawha County, the United Fuel Gas Co. is due in the Big Injun sand at a test on the Townsend-Young farm. In the same district, the same company has started to drill a test on the May Jarrett farm. Its test on the Hulings-Cobb farm is a gasser good for 880,000 feet. In Washington district, the South Penn Oil Co. is drilling a second test on the Cassingham-Skinner farm and No. 4 on the Black Band Coal Co.'s property. In Louden district, the United Fuel Gas Co.'s test on the William A. Bradford farm is dry in the Weir sand.

Lewis and Harrison County Tests

In Ten-Mile district, Harrison County, the Carson Gas Co. is rigging up on the J. W. Harbert farm. In Sardis district, Garrett Lyons has rig material at a location on the M. A. Dennison heirs' farm. In Union district, the Hope Natural Gas Co. is due in the sand on the G. N. Simmons farm. The Pittsburgh & West Virginia Gas Co. has made a location on the M. T. Law farm, in Freemans Creek district, Lewis County. In Collins Settlement district, Roy R. Horner has started to drill on the M. V. Horner farm. In Washington district, Calhoun County, the same company has a rig completed on the U. G. Downing farm. In Center district, Wetzel County, the same company is rigging up on the James Ramsey farm and building a rig on the C. E. Yeater farm.

Mingo County Recognition

On the waters of Breeden Creek, Harvey district, Mingo County, the Public Gas Corp. has completed No. 8 on the Closterman farm and good for 15 bbls. a day in the Maxon sand. On the same stream and in the same district and county, the same company has completed No. 14 on the Closterman-Tate property, showing for 20 bbls. a day in the Maxon sand. Both wells are remote from pipe lines and in a section that has not had any oil production. They are attracting a good deal of attention. Up to the present time Mingo County has no place in the producing list and for that reason the wells are regarded as important.

In Malden district, Kanawha County, the Virginia Gasoline & Oil Co. is drilling a test on the James Sheasley farm. In Scott district, Boone County, the Owens Bottle & Machine Co. is fishing at 1,115 feet on the D. J. Smoot farm. In Peytonia district, the same company is drilling a second test on the Pond Fork Coal Co.'s property. In the same district, the same company is drilling a second test on the Bull Creek Coal & Land Co.'s property. In Logan district, Logan County, the Wacatock Oil & Gas Co. is fishing at a test on the Martha Chambers farm. The same company has the rig completed for No. 7 on the Dingess Run Coal Co.'s property.

On Triplett Run, Spencer district, Roane County, the Carter Oil Co.'s test on the Craig-Bartlett farm is a gasser in the Big Injun sand and spraying a little oil. It will for the present be operated as a gasser and may later be drilled down. On Island Run, Sherman district, Calhoun County, the Hope Construction & Refining Co.'s No. 5 on the Granville Rice farm is through the Big Injun sand and a natural producer good for 5 or 6 bbls. a day. On Rock Camp Run, Spencer district, Roane County, the Federal Oil & Gas Co. has drilled deeper No. 16 on the Pell, Newman & Roberts farm and secured a light gasser. It was formerly a gasser in the salt sand.

In old defined territory in Center district, Wetzel County, the Hope Construction & Refining Co. has now drilled through the Gordon sand its No. 3 on the Mary Cain farm and since put to pumping is producing 15 bbls. a day. In Ten-Mile district, Harrison County, the South Penn Oil Co. has completed No. 10 on the J. T. Goodwin farm, at which the rig had been standing idle for more than two years in the Gordon sand at a total depth of 3,125 feet and good for 10 bbls. a day. This location is on Grass Creek.

Gassers in Ritchie County

On Hughes River, Clay district, Ritchie County, the E. M. Treat Oil & Gas Co. has drilled its No. 15 on the W. J. Collins farm through the Big Injun sand. It is a small gas well. On Gillespie Run, Grant district, Ritchie County, the Penn Royal Gas Co. has now drilled No. 4 on the I. N. Jacobs farm through the Big Injun sand. It is a very light gasser. This location is 900 feet northwest of No. 3 on the same lease. In Clay district, Wirt County, W. C. Patterson has completed No. 11 on the C. E. Vandeventer farm and dry in the Big Injun sand. On Mill Seed Run, DeKalb district, Gilmer County, the Hope Natural Gas Co.'s No. 5 on the Bennett farm is a gasser in the Maxon sand good for 3,000,000 feet a day. In Burning Springs district, the Hope Natural Gas Co. is due in the sand at a second test on the Rebecca Hays farm. In Williams district, Wood County, A. E. Cooper's No. 3 on the F. G. Mixer farm is good for 3 bbls. a day in the Berea grit. In Clay district, Wetzel County, the Manufacturers Light & Heat Co. has now drilled its test on the H. A. & E. A. Chaney farm through all sands and dry. The hole has been plugged and aban-

(Continued on Page 140)

Kentucky—Tennessee

By Vern T. Whitney

Freun Oil Co. gets promising gasser, Holmes County, Mississippi. Russell Development Co. has two producers in Sunbright area, Tennessee. Kanawha Oil Co.'s well makes 100 bbls., Sulphur Creek, Cumberland County. Atlantic Oil Producing Co. gets 35-bbl. well, Wolfe County, best in Owensboro district.

LEXINGTON, Ky., April 20. — The past week has been featured by several important developments in the area comprising Kentucky, Tennessee and Mississippi. The most important feature was the Freun Oil Co.'s test in Section 18-13-1e, 12 miles north of Yazoo City, in Holmes County, Mississippi, which tested 2,000,000 feet of gas at 2,068 feet, where a hard, crystalized sand was picked up. As soon as possible the test will be drilled deeper, as the sand has all the appearance of the producing oil sands of Louisiana.

Another interesting report states that T. B. Slick, the Mid-Continent producer, is planning to drill a deep test near Holly Springs, in Marshall County, Mississippi, and that he is now moving in a California type combination rig from Ardmore, Okla. The section around Holly Springs has been thoroughly geologised by competent geologists who are of the opinion oil will be found in large quantities. Union County, Mississippi, will also receive a test, as the Baldwyn Petroleum Co., which owns a large acreage in Union, Lee, Prentiss, Itwamba and Copiah Counties, has let a development contract to Jean F. de Villiard, of El Dorado, Ark. The well will be drilled about 10 miles northeast of New Albany.

It may be news to some that at the present time there are 24 rigs up in 23 different counties in the State of Mississippi.

In Tennessee, it is reported several wells are being started in the recently opened area in the vicinity of Sunbright, in Morgan County, where the Russell Development Co. has completed two wells. No. 1 Cook, the discovery well drilled in last October, is pumping 20 bbls. daily from the Mississippian lime formation at 1,401 feet, where 25 feet of pay was shot with 80 quarts of nitro. The second well was drilled on land owned by the Russell Co. in fee and is 400 feet south of No. 1 Cook. It started off at 25 bbls. naturally at 1,470 feet. Sand was from 1,430 to 1,450 feet. Both these wells show a gas pressure of 270 pounds. No. 2 on the Russell lands is now under way and is 400 feet due east of No. 1. Another location has been made by this company on the Widow Ellis farm, adjoining.

The Galloway Co., recently organized, has purchased the Galloway farm, one-half mile south of the Russell holdings, consisting of 737 acres in fee for $10 per acre, and has started a well 200 feet from the north line of the farm.

The Louisa Co. has leased the west 500 acres of the Galloway tract and has already let contracts for the immediate drilling of two wells. The oil from this new field is run through pipe line laid by the Russell Development Co. to its loading racks at Rugly Road, on the main line of the Southern Railway, where it is shipped in tank cars to the Louisa Co.'s refinery. This new area is about 6 miles southwest of the old Glenmary Pool, where the Russell Co. has in the neighborhood of 16 producing wells.

A great deal of credit is due the State Geological Survey, under the direction of Wilbur A. Nelson, for the excellent work done in mapping structures. Further exploratory work is expected to result in the finding of a number of commercially profitable pools in the counties of and adjacent to the Cumberland Plateau region of the Volunteer State.

Activity in the Tinsley's Bottom section in Clay and Jackson Counties, Tennessee, continues at a high pitch, and the coming season will probably see a considerable number of wells drilled in the surrounding area.

Dafoe and his associates have moved their rig from No. 2 Draper to No. 4 location on the Williams farm; No. 1 Ben Hix is on top of the pay sand; No. 1 Osgathorpe is shut down with a fishing job; No. 3 Hamp Lynn is drilling at 350 feet; Young Oil Co. is spudding No. 1 Arms and A. C. Edenfield has staked off a location on the Spivey tract.

Week's Work

The past week in the Kentucky Field shows 34 completions, 7 failures, 3 gas wells and 24 producing wells with a combined flush of 488 bbls. Compared with the previous week this shows 9 less completions, 6 less producers, 3 less dry holes, 1 more gas well and an increase of 22 bbls. in initial output. The wells were distributed by counties as follows

County—	Comp.	Wells	Prod.	Dry	Gas
Barren	7	6	59	1	0
Allen	5	4	13	1	0
Warren	4	4	140	0	0
Owensboro district	3	2	35	1	0
Cumberland	3	2	107	0	1
Wayne	3	1	15	2	0
Lee-Owsley	2	0	0	2	0
Lawrence-Johnson	2	2	70	0	0
Johnson-Magoffin	2	2	14	0	0
Rowan	2	0	0	0	2
Wolfe	1	1	35	0	0
Total	34	24	488	7	3
Last week	43	30	466	10	2
Difference	9	6	22	3	1

Pipe Line Runs

The total production for March, in western Kentucky was 116,384.87 bbls., an increase of 8,393.02 bbls. over February. Allen County led in the increase with a gain of 4,856.56 bbls., while Warren County showed a gain of 3,943.34 bbls. The largest decrease occurred in Cumberland and Monroe Counties, which fell off more than 2,000 bbls., due to a break down of pumping equipment.

The Cumberland Pipe Line Corp.'s runs from the eastern division for the month of March showed a decrease of 21,060.50 bbls., compared with February figures, with a total run of 279,297.42 bbls. March also shows a decrease of 14,071.24 bbls., compared with January figures.

Cumberland County

The northern extension of the Sulphur Creek Pool of Cumberland County again scored a good completion in the deep pay below the Pencil Cave. It is the Kanawha Oil Co.'s No. 1 Mrs. Coop, 800 feet from Raydure's No. 2 Coop, which came in February 6 flowing 35 bbls. per hour and which is still making 190 bbls. daily, good for better than 100 bbls. at a total depth of 840 feet, 200 feet below the Pencil Cave. All operators in the Sulphur Creek Pool are planning to drill their wells to the deeper pay. W. S. Raydure & Son are spudding in No. 4 Mrs. Coop to offset the Kanawha's well. This hole will be rushed to completion to get in on the big pay from which the Kanawha is drawing. It is the first semblance of a line fight ever had in Cumberland County and is causing much comment.

The Paragon Development Co. has a tank farm and pump station on Sulphur Creek, about a half mile below the pool where the big wells are performing, and is making every effort to handle the oil as fast as possible. The oil is relayed at the main station on the Cumberland River at Neeley's Ferry to Glasgow.

Wilcox Brothers, of Cleveland, will deepen No. 1 Davidson, at the head of Williams' Prong, on Sulphur Creek, this week. It is now down 200 feet below the Pencil Cave and showing considerable oil. If it prove a producer it will open up another important Sulphur Creek extension.

Pulsey Creek

McClintock, Reid & Heckathorn have moved a rig onto the Pulsey Creek Dome on the J. M. Hughes farm and will commence drilling at once. Pulsey Creek is southeast of the Kettle Creek Pool and southwest of the Peytonsburgh Pool.

Bear Creek

Freeman & McCormick's No. 1 T. L. Bow is estimated good for 7 bbls. in the second Sunnybrook sand at 573 feet. Tankage is being erected and the well will be pumped natural to test it before shooting. It is west of the Bear Creek Pool proper on an anticline underlying the Meshack uplift. The apex elevation of the black shale being 681 feet above sea level.

E. M. Treat & Co.'s No. 6 Dickens, 1,000 feet from No. 1, was plugged back to 220 feet where it is making an abundance of gas, which will be utilized on the lease. It was originally drilled to 600 feet through the stray and first Sunnybrook sands, which were barren. The black shale was from 292 to 319 feet.

Warren County

The best well of the week in Warren County was Roy Hogan's No. 5 Ben Ford, south of No. 5 Shannon, good for 100 bbls. naturally at 450 feet. The Ford lease is in the shallow Richpond Pool, opened by Hogan, which has shown so many good shallow wells during the past six months. The production comes from the Mississippian lime and is holding up exceedingly well. In this same district, Jack Loman and Doug Bolling finished their sixth straight producer in this area for 15 bbls. at 460 feet. It is No. 5 Shannon.

In the Plano district, Zimmer and others' No. 8, on block No. 8 of the John Covington farm, is a 3-bbl. stripper at 360 feet.

In the McLemore-Gillespie-Price Pool, the Amfot Oil Corp. brought in No. 8 Jess Shanks for 22 bbls. at 1,110 feet.

(Continued on Page 146)

Fields of the Central West

By Whit

FINDLAY, Ohio, April 20.—Three months have now passed since the opening of the year and still the Central West fields fail to show any activity to speak of. With the advance in the price of crude, operators got busy preparing for one of the best years for field work since the war. A small amount of work has been done but nothing like that expected. First came the bad winter. For a couple of weeks ideal weather has prevailed but the fields show no greater activity, and some can not account for the lag in new work, but it is easy to figure out in the Illinois, Indiana and Lima fields. Central Ohio, more of a gas field than oil, has its usual amount of work under way, but to a large extent by the gas companies.

There is some wildcat work on the outer edges of the Illinois, Indiana and Lima fields where operators are hoping to open better producing pools, while in the defined areas less work is under way, as the wells do not maintain anywhere near their flush production after being on the pump a few days. The truth is the owners of wells are not realising what they should out of new wells. Some only figure to do enough drilling to keep their daily production at normal, but find that a hard thing to do, and for that reason the drilling of new wells is more of a loss than a gain. Once in a while a good well is gound deeper in the producing sand, but this is so seldom that the monthly runs fail to show any great increase.

Operators say the reason for drilling within the defined limits is that the wells are located upon leases which are all equipped with power plants sufficient to handle all wells that can be drilled on a lease, leaving the cost of operations to the drilling, casing, drive pipe, tubing rods, pumping jack and a shot, while a few feet of oil line is required from the casing head to tankage. When drilled on a new lease and only small producers the cost is much greater as power plants must be installed as well as pumping house, which almost doubles the cost of a well and for that reason they claim they are not realizing any profit, as matherial and labor is so much greater than when good wells were being found.

With the wildcatter it is different, for if only a stripper is found the pipe is naturally pulled and the lease given up as of no value. While the well might make a small pumper, the additional cost of equipping would drill another wildcat in some other area, therefore getting two shots toward opening something new to one well equipped and put on the pump.

At from $2.50 to $3 per barrel it might mean a small profit for the drilling of small wells like those now found in the three fields mentioned, but it might require from one to three years for a well to pay out its cost which can not be figured much of a gain for the owner.

These conditions are more noticeable in the Trenton Rock Fields of Northwestern Ohio and Eastern Indiana, as there is but one sand to draw from, while in the Illinois Field there are from two to nine producing sands found, any of which may produce oil.

In the Central West fields for the week but 24 completions were reported, with three dry holes, one gas well and a new flush production of 410 barrels, which is an improvement over some recent weeks. Twenty-two of these wells were in the Lima Field and two in Illinois, as Central Ohio and Indiana failed to report any new ones.

Lima Field

Ten counties had new completions for the week in the Lima Field of Northwestern Ohio, and while the flush production looks good, it may help out in the starting of some new work.

In Douchquet Township, Auguaise County, in the vicinity of Wapakonetta, C. C. Romshe's No. 4 well, 160 feet from the south line and 630 feet from the east line of the J. F. Kohler farm, Section 17, produced 60 bbls. the first 24 hours and the best find of the week. In the

(Continued on Page 102)

also have a considerable showing of salt water.

In the northwest quarter of Section 14, Pike Township, Perry County, the Paxton Oil Co. completed a test on the Edgar Denman farm, one-fourth of a mile south-

mation on the L. M. Thracker farm. In Jefferson district, the Cambridge Gas Co. has a gasser on the A. & M. D. Mullens farm. In Curry district, Putnam County, the United Fuel Gas Co.'s test on the James E. Johnson farm is a gasser in

Co. is due in the sand on the G. N. Simmons farm. The Pittsburgh & West Virginia Gas Co. has made a location on the M. T. Law farm, in Freemans Creek district, Lewis County. In Collins Settlement district, Roy R. Horner has started

facturers Light & Heat Co. has now drilled its test on the H. A. & E. A. Chaney farm through all sands and dry. The hole has been plugged and aban-

(Continued on Page 140)

GOOD JUDGMENT

wells.

A great deal of credit is due the State Geological Survey, under the direction of Wilbur A. Nelson, for the excellent work done in mapping structures. Further ex-

Raydure & Son are spudding in No. 4 Mrs. Coop to offset the Kanawha's well. This hole will be rushed to completion to get in on the big pay from which the Kanawha is drawing. It is the first semblance of a line fight ever had in Cum-

rods, pumping jack and a shot, while a few feet of oil line is required from the casing head to tankage. When drilled on a new lease and only small producers the cost is much greater as power plants must be installed as well as pumping

C. C. Romshe's No. 4 well, 160 feet from the south line and 630 feet from the east line of the J. F. Kohler farm, Section 17, produced 60 bbls. the first 24 hours and the best find of the week. In the

(Continued on Page 102)

Good judgment is the governing factor in the purchase of tools for drilling in hard formation.

An increasingly large number of rock bit users are turning to REED ROLLER BITS, because of their lower cost per foot of hole drilled and more satisfactory performance.

We will gladly refer you to a number of large exclusive users of Reed Bits and Reamers upon request.

REED ROLLER BIT COMPANY

New York, HOUSTON Los Angeles

Fluid Delivery From Oil and Gas Wells

Hydraulic Control Reservoirs Considered Further With Discussion of Volume-time Curves and Other Features

By Stanley C. Herold
Petroleum Geologist, Stanford University, California

The three X-axes which appeared in the analysis of the pressure-time and velocity-time relations, as discussed in the preceding installment, continue to play their part in the remaining primary function relations.

These three axes, we said, marked three zero points of reckoning in our measurements of the delivery functions. The absolute zero is determined by nature and we may regard it as absolutely fixed and unchangeable. If it is not thus fixed, it is probable that experiments performed by man will never detect its variations, whether these be small or large. The experiments would fail due to the lack of a standard for comparison. It seems that our absolute zero is the essence of fixity, at least so far as we shall ever know.

The atmospheric zero is not fixed, as we know. Its position on the absolute scale is at all times determined by nature and is, as we say, dependent upon altitude and weather. Scientific experiments often require the consideration of its position at the time they are performed and also the consideration of any variation in its position during the time occupied by them. It is sufficient for most engineering computations to consider the atmospheric zero as fixed, at least for and at the locality of the apparatus; in our case, at the well. Variations may be great over short periods of time, but for the longer periods, the average will not vary greatly as between, say, one year and another. The "experiment" in which we

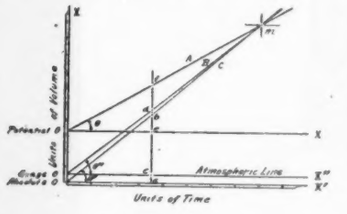


Figure 259

are interested is the performance of the well; it is an operation covering a comparatively long duration of time. Throughout our analysis we shall treat with atmospheric zero on the basis of fixity of position, with the understanding that the proper allowances may be made for variations when accuracy may so require.

The potential zero is determined by man. He specifies the back pressure against which the production from the well is to take place, thereby determining the position of this zero on the absolute scale. We found this zero to be the one instinctively used by the hydraulic engineer in his calculations upon reservoirs with liquids and, as we proceed with the analysis of oil and gas reservoirs, it will become more and more evident that it is also the zero which must be adopted by the oil and gas engineer as a basis for all his calculations upon reservoirs. Variations in the position of the potential zero may be small or large, but since these variations are imposed by man, he has the means of computing the new position from the old one, provided he realizes the mathematical significance of the change he has imposed, or that of the change he is about to impose, upon the conditions of flow from the well.

Volume-Time Curve

257. The volume-time curve is represented in oil and gas field practice by the "cumulative production" curve. (Article 23). The present designation serves to emphasize the fact that, whereas in the velocity-time curve the area subtended by the curve represents volume, we now have a curve wherein the ordinates alone represent volume.

There is further reason for designating this the volume-time curve. The cumulative production curve always shows the total volume of fluid which has been withdrawn from the reservoir between the point of time when the well began producing and some subsequent point of time in the life of the well. Now, we have previously stated that the true function of delivery in any given reservoir is the "volume remaining" and not the "volume withdrawn." (Article 238). But the volume remaining in a hydraulic control reservoir is mathematically infinite. (Article 78 b). As for reservoirs of this control, we are forced to adopt the expedient of Article 239 in reckoning with life elapsed and volume withdrawn. For the reservoirs belonging to the finite controls we shall deal with the true function of delivery and the volume-time curve there becomes the inverted cumulative production curve—inverted because volume is measured, in figurative language, in the other pan of the balance scales. Thus, for the sake of consistency and precision, we speak of the volume-time relations rather than use a term which may possibly lead to confusion at a later time.

258. Where the reservoir is not accessible in all its parts, observations upon volume necessitate the consideration of the interval elapsing between two points of time. Admittedly, oil and gas reservoirs offer a very restricted accessibility. We therefore only know our volume quantities after the elapse of time. The type reservoirs, however, permit observations on volume as of a single point of time. By experimentation upon these types we come to understand the mathematical relation between the two kinds of observations on volume. (Article 75). When we have once determined this relation, we realize that, in order to learn all we may wish to know about volume, it is not essential that any part of the reservoir be accessible except the point at the orifice. The record of performance at the orifice is sufficient for our purposes.

259. Figure 259 illustrates the ideal volume-time curve for hydraulic control. The line A, with origin at potential zero, has for its formula,

$$Vo = KT$$

which, as stated in Article 78 (b), is the inclined straight line. The angle 0 which this line makes with the X-axis depends upon the velocity, the units em-

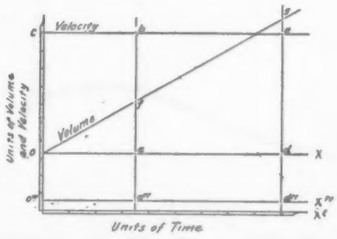


Figure 260

ployed in measuring velocity, volume and time, and also upon the scales used in plotting these quantities. The line represents potential volume; it is the line which is necessarily obtained when actual accumulated production from the ideal well is graphically recorded because such production automatically establishes the proper X-axis from which measurements are always made. There seem to be no possibilities of basing computations on any but the correct axis with the volume-time curve.

The Three Axes

Although present practice does not concern itself with axes other than the X-axis, the X″— and X′—axes are nevertheless existent; all three axes bearing their proper relation on the absolute scale. The line B represents the volume-time curve for production only against the pressure of the atmosphere. Since the velocity in this case would be greater, the angle 0″ is greater than the angle 0. The line C represents the volume-time curve for production against absolutely no pressure at the orifice. The angle 0′ is greater than the angle 0″. When the axes are properly spaced and the angles are cor-

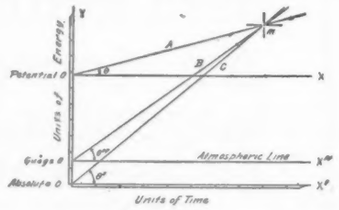


Figure 264

rect, the three lines, A, B, and C, meet at some point m.

At any point of time we may draw a vertical line intersecting the three volume-time curves and then, as between this figure and Figue 252, we have the following relationship between quantities:

$$ab : cd : ef = Ve' : Ve'' : Ve$$

a deduction easily derived from the mechanics and geometry of the relations between volume and velocity.

260. A feature of these relations between volume and velocity is shown in Figure 260. Both functions are plotted as ordinates and the function of time is used as abscissas. The potential axis is at X. As stated in Article 257, the relation of the two curves is such that the following equation may be written:

$$\frac{\text{Area oabc}}{\text{Area odec}} = \frac{\text{Ordinate af}}{\text{Ordinate dg}}$$

But this is only true when both functions are plotted in accordance with the potential axis.

Let us take the case of a gas well of this control. The accumulated volume produced by the well against the line pressure (ideally constant) is plotted with respect to the X-axis. Velocity, however, is plotted according to measurements on open flow and the curve is consequently drawn with respect to the X″-axis. It is not true that:

$$\frac{\text{Area o″a″bc}}{\text{Area o″d″ec}} = \frac{\text{Ordinate a″f}}{\text{Ordinate d″g}}$$

Acceleration-Time

261. The statement was made in Article 29 that where there is no change in velocity, the value of the acceleration is zero. This is the situation with regard to reservoirs of hydraulic control, and as given in Article 78 (d), the fact may be expressed mathematically thus:

$$Ac = 0$$

The function of acceleration in this control appears to be only of interest as a matter of comparison with the same function in the finite controls. We therefore merely mention it in the passing.

Energy-Time

262. The function of delivery which we designate as energy was discussed in Articles 31, 32, 98, 155, and 216 to 219, inclusive. We obtain liquids and gases from reservoirs because of the energy which is stored up within the reservoir and which is available at the orifice. It is perhaps not essential that primary function curves involving energy be plotted in the case of reservoirs which produce only liquids or only gases. For combination reservoirs these curves possess a peculiar technologic and economic value. As a consideration in mathematical analysis, however, the subject of energy is interesting even for those reservoirs producing single fluids.

263. Energy, like volume, necessitates the consideration of the interval elapsing between two points of time when the reservoir is not accessible in all its parts. It is therefore desirable to establish energy-time relations. This we do with the type reservoirs for the same reason and with corresponding results as set forth in Article 258.

By Article 246 the pressure time relation for reservoirs of hydraulic control is:

$$P = K \quad \ldots\ldots\ldots\ldots (1)$$

and by Article 259 the volume-time relation is:

$$Vo = KT \quad \ldots\ldots\ldots\ldots (2)$$

By Article 155, treating on liquids, and by Article 219, treating on gases, energy-pressure-volume relations are thus:

$$E = KPVo \quad \ldots\ldots\ldots\ldots (3)$$

We may therefore obtain energy-time relations for this control by multiplying the left-hand members of (1) and (2) and equate the product to that obtained by multiplying the right-hand members of the same equations, thus:

$$PVo = KT \quad \ldots\ldots\ldots\ldots (4)$$

and according to (3):

$$E = KT \quad \ldots\ldots\ldots\ldots (5)$$

which is the equation of the straight inclined line. Since we have adopted the left-hand origin for both curves (1) and (2), the origin for (5) is necessarily at the same position.

264. Figure 264 illustrates the ideal energy-time curve for hydraulic control. The line A represents potential energy as computed from potential pressure and potential volume. The angle 0 which this line makes with the X-axis depends upon the units employed in measuring pressure and volume, and upon the scale used in plotting the curve.

As in the case of volume-time relations,

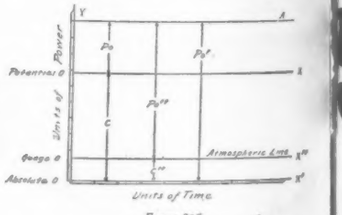


Figure 267

we have the usual X″- and X′-axes. The line B shows the accumulated energy which would accrue if production were to take place against atmospheric pressure and the line C that which would accrue if the perfect vacuum could be applied at the orifice.

265. When a reservoir produces liquid only, or gas only, we find that production accumulates according to the volume-time curve of figure 259. When the reservoir produces liquid and gas combined, we make the following distinction between curves for the two fluids as these accumulate in quantity:

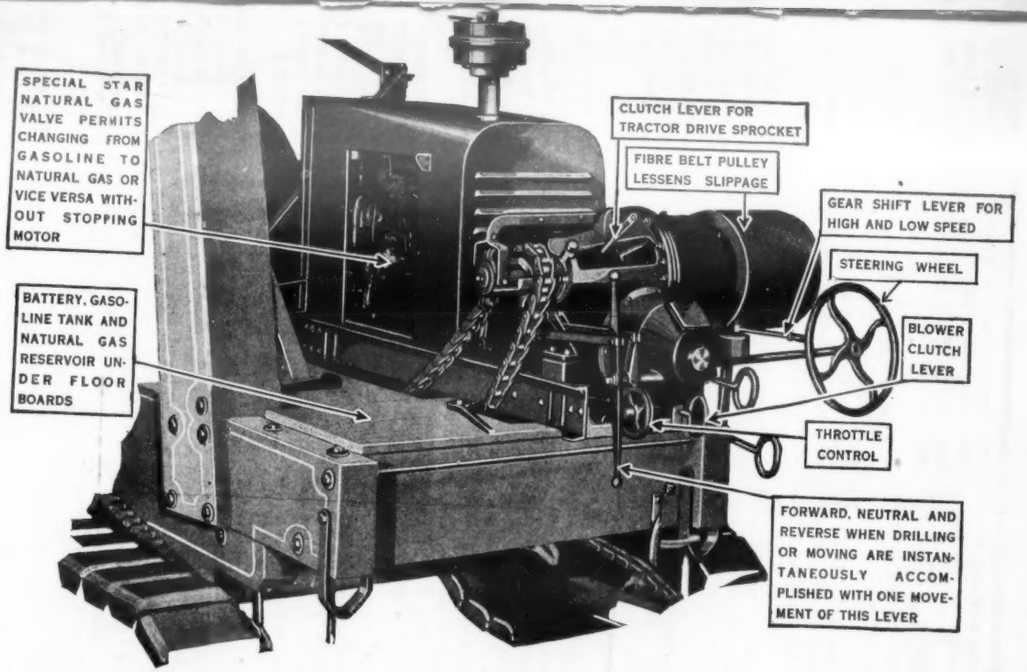
(a) The liquid accumulates according to the volume-time curve.

(b) The gas accumulates according to the energy-time curve.

This distinction between the two applies to combination reservoirs of all three controls. By purely mathematical

(Continued on Page 104)

Great New STARS Most Economical Machines For Cleaning Out and Drilling


SPECIAL STAR NATURAL GAS VALVE PERMITS CHANGING FROM GASOLINE TO NATURAL GAS OR VICE VERSA WITHOUT STOPPING MOTOR
BATTERY, GASOLINE TANK AND NATURAL GAS RESERVOIR UNDER FLOOR BOARDS
CLUTCH LEVER FOR TRACTOR DRIVE SPROCKET
FIBRE BELT PULLEY LESSENS SLIPPAGE
GEAR SHIFT LEVER FOR HIGH AND LOW SPEED
STEERING WHEEL
BLOWER CLUTCH LEVER
THROTTLE CONTROL
FORWARD, NEUTRAL AND REVERSE WHEN DRILLING OR MOVING ARE INSTANTANEOUSLY ACCOMPLISHED WITH ONE MOVEMENT OF THIS LEVER

For years oil men have asked for a drilling machine that would lower the cost of drilling and cleaning out. That would eliminate all or part of such costly items as moving expense, fuel, water labor, and time.

Months of patient Star development work has solved the problem. Stars No. 28ST and 30ST Super-Tractors are the answer. Note carefully how these new Stars reduce and in some cases cut off entirely the above items of expense.

Moving Expense—being tractor machines, they move under their own power and tow wagons. No teaming is necessary.

Fuel—the burning of oil, gas or coal in boilers is eliminated. A moderate amount of gasoline is all that is needed to operate these four cylinder Star Super-Tractors. And where natural gas is available the cost of operating them is cut to almost nothing by the use of the Star Natural Gas Attachment. The operator changes from gasoline to gas and vice versa without stopping the motor. Both fuels used at any time.

Water—a small amount needed only for radiator and for drilling purposes. Water for boilers eliminated.

Labor—no boiler to fire. Simply push the electric starting button and the machine is in operation. Plenty of light too, for night work provided by an electric lighting system.

Powerful Waukesha Ricardo Head 4-cylinder motor gives you all the power you ever had with steam engines, and more. Runs as smooth and velvety as steam.

Star Reversing Transmission gives you forward, dead center and reverse just like a steam engine. Reversing is instantaneous. The engine with the combination of two speeds forward and two speeds reverse is almost non-stallable.

Each of these new Stars is equipped with Super-Tractor wheels having 7 sq. ft. of ground contact enabling them to travel over any kind of country.

Bulletin No. 16 giving complete information should be in the hands of everyone interested in cutting the cost of cleaning out and drilling. Write for it.

THE STAR DRILLING MACHINE COMPANY, AKRON, OHIO

BRANCHES AT CHANUTE, KANSAS; LONG BEACH, CALIFORNIA; PORTLAND, OREGON. EXPORT OFFICE—2 RECTOR STREET, NEW YORK CITY

MEN KNOWN IN OILDOM

A. M. McQueen

A. M. McQueen, a vice president of Imperial Oil Limited, and also of the International Petroleum Company, Limited, has devoted practically the whole of his business career to the oil industry in western Ontario. He also has large interests in other parts of the world.

Since 1916 Mr. McQueen has been one of the leading officials of Imperial Oil Limited, and he has been especially active in the very extensive prospecting and development program undertaken by that organization in the oil districts of the Northwest. He has under his administration also the drilling and producing operations of the International Petroleum Company, Limited, in Peru and Colombia.

Mr. McQueen is a Canadian by birth and a native of Petrolia, Ontario, where his father was one of the earliest settlers. He began with the Petrolia Crude Oil & Tanking Company. Later he was associated with M. J. Woodward & Company and the Premier Oil Company, Limited, in their refineries in the Petrolia district. For many years after that Mr. McQueen was manager of the business interests of J. H. Fairbank, of Petrolia, who was among other things, one of the largest crude oil producers in Canada.

PERSONAL PARAGRAPHS

L. F. McMahon has returned to Casper, Wyo., after a visit of several weeks in New York and other Eastern points.

* * *

J. Ray Stebbins is spending a week in Texas looking after the interests of the Stebbins Oil & Gasoline Company.

* * *

C. W. Fifield of the sales department of the Continental Oil Company, in Denver, Colo., was in Casper, Wyo., recently.

* * *

E P. Bacon of the Natrona Power Company, has returned to Casper, Wyo., after an extended trip through the Eastern States.

* * *

Atwill Drope, of Petrolia, Ont., has reached Talara, Peru, where he will work for the International Petroleum Company.

* * *

S. T. Hicks, of Camden, Ark., has been appointed State conservation agent, of Arkansas, to succeed W. E. Rembert, recently resigned.

* * *

Frank Phillips, president of the Phillips Petroleum Company, will leave New York shortly for a visit to Bartlesville, Okla., with a party of stockholders to attend the annual meeting.

S. F. Shaw, mining engineer of San Antonio, Tex., who also devotes his talents to oil and gas, was a Tulsa visitor during the past week.

* * *

C. E. Shoenfelt, of Denver, Colo., who has charge of operations for the Marland Oil Company in Wyoming, was in the Wyoming fields recently.

* * *

Nelson K. Moody, president, and Dana H. Kelsey, vice president and general manager of the Prairie Oil & Gas Company, were in Tulsa last week.

* * *

John J. Durst, district manager of the Oil Well Supply Company, in Casper, Wyo., spent a few days at the offices of the company at Sunburst, Mont.

* * *

A. G. Talbot of the Advanced Petroleum Company, Chicago, has bought an interest in the Detroit Independent Oil Company of Detroit, Mich., controlling nearly 50 stations in Detroit and that vicinity.

* * *

Howard Carnahan, in charge of the gauging of all oil in the West for the Bureau of Mines, was a visitor in Casper, Wyo., the past week looking over the work of his field men in the Wyoming fields.

* * *

T. E. Ward, the foreign sales representative for the California Machine Company expects to make a trip to the Pacific Coast about May 1 for the purpose of discussing sales activities in various foreign fields.

* * *

J. B. Hungate, representing the Jones & Laughlin Steel Corporation, of Pittsburgh, Pa., in St. Louis has been calling on the trade in the Mid-Continent with H. P. Quinn, of Tulsa, Southwestern representative.

* * *

Wallace McMullen, vice president and general manager of the Derby Dome Wyoming Oil Company, was in Casper from the Lander district the past week on business connected with the Dallas and Derby fields.

* * *

A. T. Locke, of the A. T. Locke Oil Company, of Chicago, will move his offices from the Railway Exchange Building to the Tribune Tower May 1, he has announced. This is the first oil company to move into the tower.

* * *

L. H. Hitchcock, of the Novo Engine Company, will visit Chicago and the factory of the company at Lansing, Mich., and then make a tour of the Eastern fields. He expects to be away from his Tulsa headquarters for about six weeks.

* * *

Henry W. Davis, of the New Bedford Cordage Company, is devoting three weeks to the Mid-Continent territory. He will return to his New York offices in time to attend the convention of the Natural Gas Association at Atlantic City, N. J.

* * *

Robert J. Lindsay, secretary of the Hope Engineering & Supply Company, of Mount Vernon, Ohio, was in Casper, Wyo., recently in connection with the starting of some special construction work by his company for the New York Oil Company.

* * *

Otto Hugo Stinnes, third son of the late Hugo Stinnes, German industrial leader, arrived in New York last week on the Cunard liner Berengaria from Southampton. "I am here to study conditions generally throughout the United States," said the young man.

* * *

F. J. White of Bradford, Pa., representative of the Continental Supply Company in the New York and northwestern Pennsylvania oil fields, was in Oil City, Pa., recently on his way from the Brookville, Pa., gas fields to his headquarters in Bradford, Pa.

* * *

Robert W. Ewing, formerly one of the best known oil well supply salesmen in the eastern and midwest fields, after spending several months in Pittsburgh, has returned to his home in Mercer, Pa. Some years ago Mr. Ewing fell and sustained an injury to his hip, from which he has never fully recovered.

* * *

Chalky C. Fisher, former shooter for the Independent Torpedo Company, at Okmulgee, Okla., has been transferred to Eureka, Kans., and Karl Steefey, who formerly did the work for the American Torpedo Company, at Okmulgee, Okla., will now handle the operations for the Independent Torpedo Company at that city.

* * *

S. H. Keoughan, president of the Continental Oil Company, and H. B. Simcox, superintendent of operations for the same company, were in Casper making an inspection of company properties in the Salt Creek Field.

* * *

George Marvin, special representative of the "Outlook," is in Shreveport, La., collecting material for a magazine article which he has been commissioned to write. The article on Shreveport will be called "Oil and Lillies" and will present the contrast between Shreveport as it was in its early days and as it is now, briefly sketching the oil history since 1906.

* * *

R. P. O'Grady, oil operator, of Amarillo, Tex., is in Tulsa on business. Mr. O'Grady is a firm believer in a big future for the Texas Panhandle as an oil region, where already several of the largest oil companies own extensive acreage which will be explored when the industrial demand calls for the exploration of a possible big field of high grade oil.

* * *

Stockholders of the Continental Oil Company, at their annual meeting, approved a resolution calling for an increase in the number of directors from seven to nine. As a result of this change P. R. Naylor, traffic manager of the company, and E. S. Karstedt, sales manager, were elected to the board. A. D. David, refinery manager, also was elected to the board, succeeding O. H. Williams, resigned.

* * *

For the purpose of obtaining first hand information regarding spring activities in the Wyoming oil fields, Charles D. Wagner, sales manager of Axelson Machine Company, is making a trip through the Wyoming fields, having left Los Angeles for Cheyenne, April 11. Before returning to California Mr. Wagner will visit a number of Axelson customers in the Oklahoma and Texas fields. He expects to spend approximately one month on this trip.

* * *

W. A. Canady of the Shaffer Oil & Refining Company at Chicago is reported as about to associate with George N. Moore in the Lake Petroleum Company, which Mr. Moore recently organized to do a general marketing business. Mr. Canady formerly was associated with Mr. Moore in the Shaffer Company, and on Mr. Moore's resignation from that company, became vice president and general manager.

* * *

M. J. Gavin, refinery engineer, and J. S. Desmond, assistant chemical engineer of the United States Bureau of Mines, formerly headquartered at San Francisco, Calif., are now in Colorado. Mr. Gavin has been appointed engineer in charge to supervise the construction and operation of an oil shale plant for which Congress has recently passed an appropriation of $90,000, and Mr. Desmond will be his assistant.

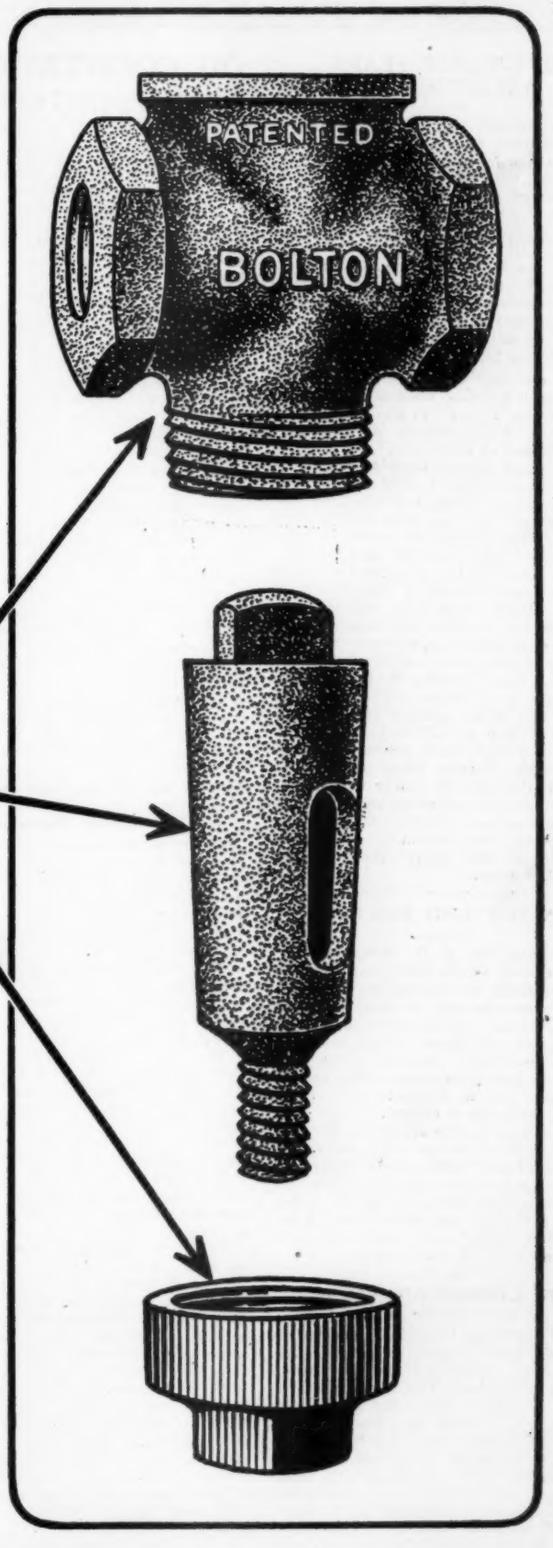
* * *

D. Casadevall, former secretary of the Argentine Government Oil Fields, Ltd., now in the United States studying the systems of oil field operation and American made equipment, recently visited the Brookville, Pa., gas fields and passed through Oil City, Pa., on his way to the Bradford development. He has been at Titusville, Pa., for some time. Later he will visit Oklahoma to get a practical knowledge of American methods.

* * *

Charles A. Whiteshot, a veteran driller who has worked in most of the important oil fields in the world, and who is now a tool fisher with headquarters in Cleveland, Okla., believes he is the oldest member of the American Legion residing in Oklahoma. Mr. Whiteshot is in his sixty-fifth year. In addition to his ability as a practical field man, Mr. Whiteshot is a writer and his book, "The Oil Well Driller" is to be found in the libaries of many oil men. It is a general treatise on oil, profusely illustrated and containing a vast store of useful information, but unfortunately it is out of print and therefore not generally available save through public libraries.

The Cock that "OILWELL" Builds



This is the Body
so trim and neat
That houses this Plug
in a leakless seat
And this is the Nut
right and left threaded
That loosens the Plug
if tightly embedded
Or tightens the Plug
if loosely embedded

For safety, continuous service, and the elimination of replacements, we recommend "OILWELL" Bolton Iron Stop Cocks.

"OILWELL" ESTD 1862 TRADE MARK REGISTERED

Made in 1-inch and 2-inch sizes, as illustrated. Can also be furnished in 2-inch and 3-inch sizes with locking device.

Write for "OILWELL" Bolton Iron Stop Cock Bulletin No. 30, or get a copy at any of our 100 Branches.

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

EQUIPMENT AND SUPPLIES

THIRTY-THREE YEARS AXELSON CO. RECORD

In advertently the Axelson Machine Co. advertisement on the back cover of The Oil and Gas Journal, March 5, carried the statement that the company had been in business 27 years, when as a matter of fact the company was originally organized 33 years ago. In transcribing the text for the advertisement the words "twenty-seven years" were inserted instead of thirty-three years, and the Axelson Machine Co. desires that the reader of The Oil and Gas Journal have correct information as to the length of time it has been in business.

The company was established in 1892 as a small machine shop in Santa Ana, Cal., operated by C. F. and G. A. Axelson, who are still actively identified with the company as executives. At that time they handled general machine shop work and produced special tools for the production of oil. That was when oil production in California was barely established. Their business gradually grew and some years later the small factory was removed to Los Angeles and larger quarters established on San Fernando Road. About eight years ago the firm outgrew its quarters and seeking acreage for expansion for years to come located in the southeastern part of Los Angeles, near Huntington Park. Here the firm constructed the large plant which has been expanded from time to time and now is said to be one of the largest oil equipment manufacturies in the world. During these 33 years of growth, the Axelson family has specialized in oil well equipment and the senior Axelsons are ably assisted in the operations of the organization by the younger members of thhe family—Delbert F and Jule C. Axelson.

NEW POLISH ROD GRIP

The new D. & B. Simplex Beam Hanger and Polish Rod Grip is being well received by production men.

The beam hanger is adaptable to a standard beam without alterations to the beam, and the sheave allows the cable to automatically equalize. The bail serves as a hook-on means when vertical and also can be dropped back over a pin in the beam if desired.

The simplex grip offers a powerful gripping action on the polish rod due to the use of the toggle action of leverage in forcing the jaws together. The advantage is that the major strains do not come on the clamping screw and nut but are taken by the heavy steel parts especially adapted for that purpose.

NEW CASINGHEAD CONTROL

Paul Arbon & Co., of Tulsa, holders of many basic patents on oil well improvements, announce a new casinghead control of all-steel. The most important feature of this control head is the fact that it is guaranteed to withstand 3,000 pounds pressure. Besides being a step in the direction of safety and conservation, the new Arbon control head, through its strong construction and efficient operation, is designed to eliminate the complicated series of valves and gates used as a Christmas tree. The control head can be operated at any distance from the well and can be rotated regardless of pressure, the makers claim.

NEW AGENT FOR HOMESTEAD CO.

The Homestead Valve Manufacturing Co. announces the appointment of the McArdle & Walsh Co., of Baltimore, Md., as agents for the distribution of Homestead products in Baltimore, Washington and surrounding territory.

OIL COUNTRY GOODS OUTPUT HOLDS; BUYING OF VERY FAIR PROPORTIONS

By B. E. V. Luty

PITTSBURGH, Pa., April 20.—The pipe mills are not running altogether as well as they were a week or two ago, while there was a considerable decrease in their activity during March. The mills were up to about a 90 per cent rate in February, while now they are doing only about 70 per cent, perhaps a little less on an average, for it is known that some are not running at altogether 70 per cent.

Pipe mill operations were swelled for a time by line pipe production, quite a bunch of orders having been placed, and these orders are now largely completed, leading to lower operations. Another factor has been a decrease in demand for merchant pipe from jobbers all over the country. In December the jobbers were advised to stock up, not on the ground that prices might advance, but on the theory that there might be a scarcity, as all the talk was that demand for steel products of all descriptions was going to be extremely heavy. As a result the jobbers stocked up early in the year. The stocking was not very extensive, but the deliveries to jobbers were considerably above the distribution by jobbers. No scarcity developed, and accordingly the jobbers have been ordering material in rather restricted manner of late. Still another point causing production to be lighter now than a couple months ago is that the mills themselves accumulated stocks of butt weld, and being now comfortably stocked they have reduced their production.

Production Maintained

So far as can be ascertained there has been no decrease in production of oil country goods in general—disregarding line pipe—but rather a more or less progressive increase since January 1. Buying of oil country goods at the present time is of very fair proportions. The buyers are conservative as to the size of individual orders, but are buying at frequent intervals, and all they buy is going into actual employment promptly so far as can be seen.

The finished steel markets as a whole have shown little change in the past week. The volume of buying is unchanged and prices are much the same, there being merely a little additional weakness in spots, one spot being in blue annealed sheets, which are now quotable at a general market range of 2.60 cents to 2.70 cents, while the market previously was quotable at 2.70 cents, subject to some shading.

Taking this month as a whole, as far as it has gone, there are some reports suggesting that there is an increase in steel buying over the same portion of March, but careful investigation does not support a view that there is any increase in activity this month compared with the month of March as a whole. A fair guess would seem to be that steel buying since March 1 has averaged about 60 per cent of actual capacity, or considerably below the production, which, however, is decreasing. As the mills were pretty well booked up at one time they can run partly on momentum, shipping more than they book, but this of course, cannot be kept up indefinitely.

First Quarter Showing

Production of steel ingots during the first quarter of this year was at an average rate of slightly over 90 per cent, against averages of 68 per cent last year and 80 per cent the year before. Consumption was quite heavy, but not altogether equal to production, many buyers having bought freely, on account of there being such favorable prognostications for exceptional business activity this year, and thus have their stocks well replenished. This is by no means universal, as some buyers have light stocks and are placing orders for quick shipment, there being even some telegraphing of orders.

April will probably show a considerable decrease in steel production from March, the decrease being emphasized by the fact that March output was particularly high, the tonnage reported at the end of the month being above estimates that had been made based merely on the amount of capacity in operation.

The pig iron market has continued very dull and prices show a softening tendency. The same can be said of coke. Heavy melting steel scrap has declined $1 and is now off $5.50 from its high point of January 1.

UNDERREAMER INVENTOR IS LOCATED AT WICHITA

The removal to Wichita, Kans., of the Marietta, Ohio, plant of the Brideport Machine Co., and the concentration at that point of all its manufacturing operations, brings to Wichita Fred Swan, who has been manager of the Bridgeport Machine Co. plant in that city. Mr. Swan

Fred Swan

will have charge of the engineering and manufacturing departments.

Mr. Swan is an inventor of oil field equipment and has a number of patented achievements to his credit, chief among them being the famous underreamer which bears his name. He will devote considerable time and energy to further developments along the same line.

BOOKLET ON FLOATING ROOFS

The Chicago Bridge & Iron Works has issued a new folder on its Wiggins floating roof for oil tanks of large capacity. The folder in colors is very attractively edited, and contains a number of cuts showing the features of the roof, especially in regards to prevention of evaporation, and elimination of fire hazards.

PYROMETER BOOKLET

The Republic Flow Meters Co., of Chicago, has distributed a very interesting and beautifully assembled booklet dealing with its products, especially the Republic pyrometers. A very interesting page of the booklet is devoted to a color plate showing the colors of the various degrees of metal heating.

NEW SIMPLEX JACK FOR FIELD AND TANK

Templeton, Kenly & Co., manufacturers of Simplex jacks, have placed on the market a new jack especially designed for oil field and heavy tank construction work.

This jack, No. 126, has a 25-ton capacity, and is constructed with a forged side lifting toe to continuously lift a weight of 25 tons, as well as the cap lift capacity of 25 tons.

The new jack is used for heavy tank work by several of the larger oil companies. It is described as a product of experience in the manufacture of jacks, and is said to combine the factors that produce man-power, safety and permanency. The lifting shoe has been constructed extraordinarily wide to permit the insertion of wooden shims or blocks to avoid damage to the surface of the article being lifted. Another feature of the Simplex Geared Jacks is the broad base and its concave formation to provide a firm non-slipping foundation.

SUPPLY TRAFFIC MEN IN SESSION AT TOLEDO

The seventh regular meeting of the Oil and Gas Well Supply Traffic Association was held at the Secor Hotel, Toledo, Ohio, on April 14.

Vice President John F. Ryan of the National Supply Companies occupied the president's chair, left vacant by the death of R. H. Thompson, of the Oil Well Supply Co.

At the close of the regular business meeting, members of the association enjoyed a pleasant afternoon of golf at the Inverness Club, followed by dinner at the Toledo Club in the evening, as the guests of Mr. Ryan.

PURCHASING AGENTS ELECT NEW OFFICERS

New offices of the Purchasing Agents Association were chosen on Tuesday, April 14, at Tulsa, Okla.

F. W. Robinson, purchasing agent of the Skelly Oil Co. and its subsidiary, the Midland Refining Co., was elected president. Mr. Robinson is an authority on iron, cotton and steel.

E. A. Cook, purchaser of the Twin States Co. and the Sun Co., was chosen first vice-president of the organization, and J. A. Edwards, of the Oklahoma Power Co., is second vice president. V. C. Fuller, purchaser of the Gypsy Oil Co.-Gulf Pipe Line Co., is the new national director from the Tulsa association, and O. V Borden is again secretary-treasurer.

LINK-BELT REDUCES PRICES

The Link-Belt Co. of Philadelphia, Chicago and Indianapolis has announced a price reduction on the Type "C" portable bucket loader and the "Cub" portable belt conveyor. The company states that due to the quantity production of these two types of portable loaders, considerable saving has been effected in manufacturing cost, which they are passing along to the user.

NEW GAS PIPE LINE

An additional compressing station to cost approximately $75,000 is under construction near Dilworth, Okla., by the Empire Cos. Excavation is being made and materials are on hand for early completion. Gas handled by this station will be delivered through the Dilworth 16-inch pipe line to Cambridge station, serving Wichita, Kans., and neighboring cities.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

Copyright 1920 Axelson Machine Company Los Angeles

The pumping problem that to you *seems insurmountable* is the problem we seek to work with

Axelson Machine Co.

General Office and Western Factory: Corner Boyle Ave. and Randolph St.
Los Angeles, Calif. P. O. Box 337

Mid-Continent Distributors: 1023 Kennedy Building, Tulsa, Oklahoma
Mid-Continent Distributors: Frick-Reid Supply Co.
Eastern Distributors: Frick & Lindsay Co.
Casper, Wyoming, Office: with Frick-Reid Supply Co.
New York City Office: 30, Church Street

Axelson
PUMPS · RODS

NATURAL GAS DEVELOPMENTS

DOUBLE HEATING POWER IS CLAIMED FROM NEW NON-ASPHYXIATING GAS

NEW YORK, April 18.—The development in a plant at West Babylon, L. I., of a new illuminating gas, which is said to be non-asphyxiating and to have double the heat value and candle power of ordinary manufactured gas, was described by Colonel E. E. Garrison, president of the Gas Bond and Share Co., who is associated with Charles R. Flint and others in exploiting the new process.

Colonel Garrison said that the new gas is made either from oil or from refinery residuum, the waste product of making gasoline from crude oil. When refinery waste was used Colonel Garrison said that a large amount of gasoline, containing from 40 to 50 per cent of ethylene, was recovered from the gas.

"The process has been invented by Dr. O. U. Bean, the inventor of the Bunsen furnace and an authority on the manufacture of gas," he said. "We have delayed any announcement on the subject until receiving a report of the Bureau of Standards on the composition of the gasoline which we are able to recover from the gas.

"We wished to know all the possibilities of the process and to cover ourselves thoroughly with patents before making a statement. We received the report of the Bureau of Standards last week, and this shows that the gasoline, which we recover from the gas contains from 40 to 50 per cent of ethylene, for which so great a demand has arisen because of its use in anti-knock compounds.

"This process gives us a gas at a much lower cost than any manufactured gas is obtainable. It is non-asphyxiating because it is manufactured at low temperature, lower than the temperature which is necessary for the production of carbon monoxide and carbon dioxide. Ordinary illuminating gas contains 30 per cent of carbon monoxide. The new gas contains none. It is composed largely of hydrogen and carbon combinations.

"One of the reasons why this process is cheaper than any other is that we are able to recover the gasoline when the tar or refinery residuum is used. This gas has 1,000 British thermal units to a thousand feet, as against 525 to 585 British thermal units to a thousand feet in the gas used in this city at present, for instance.

"The gas with this high heating power should not be used with the present household apparatus, and so the thermal units would have to be greatly reduced. This would be done by removing the gasoline by the ordinary charcoal process.

"Simply stated, our method of making the gas is to hydrogenate the carbon. Seven gallons of refinery residuum, which is virtually waste, gives us 1,000 feet of gas and 1 to 1½ gallons of gasoline with its high ethylene content. We use the equivalent of about a gallon of this heavy oil as fuel in the process. The process is one which has been described by Alexander B. Way, of Boston, as the 'oil and water in conduit process.' We have been working on this process in West Babylon for the last two years."

Colonel Garrison was formerly a vice president of the Colt's Patent Firearms Manufacturing Co. Charles R. Flint, who has been interested in developing the process, was an organizer of the United States Rubber Co., the American Woolen Co. and other large organizations.

CONSERVATION OF GAS URGED IN CALIFORNIA

Conservation is possible and desirable in all branches of the gas industry, from the first gathering of the gas in the field to its final utilization for heat or power purposes in the home or in some special industry, writes George Bowerson, sales engineer, Southern California Gas Co., in the Oil Bulletin. Regard for conservation should be observed in the handling of natural gas during the processes connected with drying and compressing it for transmission, during transmission of the gas to the main distributing points, the gas to the consumer, and its consumption through a burner. This statement sums up very briefly the possibilities of conservation, but each point mentioned must receive proper attention in a comprehensive plan of conservation, and each point should be brought to the attention of the general public.

Taking the field situation first, we find that gas is usually a by-product of oil production; although dry gas is found in large volumes. If the gas should come from an oil well, it must be gathered and brought to an absorption plant, where the gasoline is removed—which is, in itself, an immediate conservation. Part of the gas is returned for use around the field, to fire boilers used for drilling or pumping, and for other purposes. Because the gas from the absorption plant has not sufficient pressure to force itself very far through transmission lines, it must be passed through compressor plants to raise its pressure several hundred pounds.

Low-Pressure Gas

Wells that yield dry gas often are shut in during the summer, and used only when there is a heavy demand, as in the winter time. The dry gas is usually at high pressure, so that it presents a much simpler problem than the wet, low-pressure gas. However, by utilizing the latter it is possible to avoid the waste that was permitted a few years ago—the waste of lighting the gas and letting it burn.

Transmission of the gas presents a problem of great magnitude. To bring the gas from Taft and surrounding territory the Southern California Gas Co. built a 12-inch line to Los Angeles, a distance of 114 miles, and 60 miles of this has two 12-inch pipes. These lines were laid before the Ridge Route was opened and before motor trucks were used. They cost about $1,500,000, and the approximate first cost of the compressor plant serving them was $400,000.

All of the compressors of the company are driven by gas engines, and the company has installed at Taft, Calif., 6,810 horsepower to send about 32,000,000 feet a day to Los Angeles through two 12-inch pipes. The Brea plant has 480 horsepower, Torrance 960 horsepower, Dominguez 3,040 horsepower. Signal Hill 2,200 horsepower for the same purpose.

Large Expenditures Involved

Over the entire system there are 536 miles of main line used only for transmission, varying from 8 inches to 16 inches in diameter. These lines represent years of labor and large expenditure of capital, and yet they do not carry the gas to the consumer. The problem of getting gas to the individual consumer necessitated construction of miles of pipe lines and the installation of metering devices. The industrial use of gas covers practically every form of manufacturing.

At present, the company distributes about 150,000,000 feet of gas a day, as compared with 23,000,000 feet a day in 1915. The extent of this distribution is made evident by the statement that the average home uses about 100 feet a day. This fact shows the strides the company has made toward the conservation of gas, and it is now in an operating position to take care of a much greater consumption. At present, 133,000 boiler-horsepower is being developed by use of gas, which covers 287 industrial consumers; also 15,000 horsepower in gas engines. The domestic consumption is handled through 160,000 meters over 62 cities, towns and communities.

The conservation of gas should be brought to the attention of every prospective fuel user, because all other fuels have physical properties that make them fitted for long distance transportation, whereas the distribution range of natural gas is comparatively limited. For that reason, fuel users in gas-bearing areas should make every effort to take advantage of this natural resource, and thus release the oil for shipment to territories that are lacking in fuels. The conservation of fuel so effected will have a notable effect over many years.

The point that must be stressed is that any existing waste of gas is not due to indifference on the part of the various gas companies, which must depend largely on the natural gas supply for future earnings. The conservation program must be carried to the operations connected with the production of gas at the well and to its final use for domestic and industrial purposes.

NATURAL-GAS GASOLINE STATISTICS IN 1923

By G. B. Richardson

A total of 816,226,000 gallons of raw (unblended) natural-gas gasoline, having a value at the plants of $77,268,000, was produced in the United States in 1923. This output, an increase of 61 per cent over that of 1922, was more than double that of 1920, and the year's increase of 310,000,000 gallons is more than the total production of the country in 1918. Notwithstanding an increase of 22 per cent in the quantity of gasoline produced from petroleum in 1923, the quantity of gasoline produced from natural gas was equivalent to approximately 11 per cent of the quantity of gasoline produced from petroleum, as contrasted with 8 per cent in 1922.

The rank of the four leading States—Oklahoma, Texas, California and West Virginia—remained the same as in 1921 and 1922, although Oklahoma's output has increased 43 per cent and that of West Virginia only 12 per cent over that of 1922, whereas the output of Texas has increased 86 per cent and that of California 158 per cent. The increased production of natural-gas gasoline in California followed the development of the new fields in the Los Angeles Basin, in which great quantities of natural gas were produced with the petroleum, but only a fraction of the gas available was utilized, and large quantities, both before and after the extraction of gasoline, were not consumed.

During 1923 the number of compression plants decreased and the number using the oil-absorption process, both singly and in combination with the compression process, increased; the new charcoal process, by which natural gas is brought into intimate contact with activated charcoal, in the capillaries of which the vapors are condensed, was reported in use by 10 plants. The increased average capacity of the plants now in operation, contrasted with those of five years ago, is emphasized by the fact that although the total number of plants operated in 1918 and 1923 was about the same, 1,067 in 1923 and 1,004 in 1918, the output in 1923 was almost three times that in 1918.

The quantity of natural gas treated in the recovery of the natural-gas gasoline produced in 1923 was equivalent to 87 per cent of the total quantity of natural gas consumed in the United States, as contrasted with 71 per cent in 1922, 54 per cent in 1917, and 2 per cent in 1913. These figures not only show the growth of the industry from another viewpoint and the increasing conservation of natural gas, but they indicate the near approach of the time when the available annual supply of gas, which heretofore has been much in excess of the quantity treated for the extraction of gasoline, will be a controlling factor in the growth of the industry.

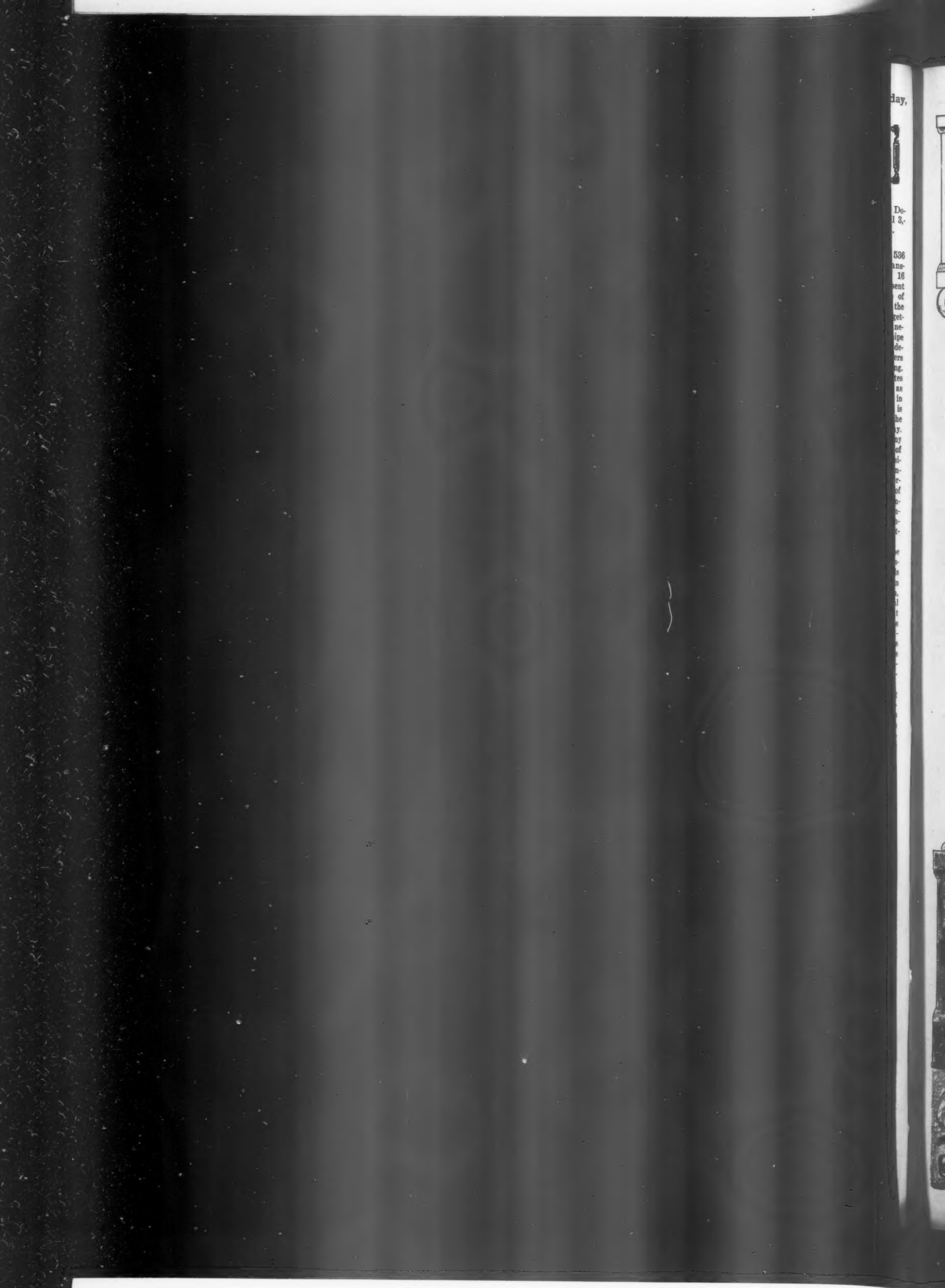
The following tables were compiled by E. M. Seeley.

(Continued on Page 132)

NATURAL-GAS GASOLINE PRODUCED IN THE UNITED STATES, 1911-1923, BY STATES, IN THOUSANDS OF GALLONS

Year	Ark.	Calif.	Colo.	Ill.	Kans.	Ky.	La.	N. Y.	Ohio	Okla.	Penna.	Texas	W. Va.	Wyo.	Misel.	Total	—Value at Plant— Thous. of Dols.	Aver. per Gal. (Cts.)
1911	.....	*.....	*...	*.....	.....	*.....	.....	*..	1,679	388	1,467	.....	3,660	.....	232	7,426	532	7.2
1912	.....	1,041	*...	*.....	.....	.....	.....	*..	1,719	1,575	2,041	.....	5,318	.....	387	12,081	1,157	9.6
1913	.....	3,461	*...	*.....	*.....	*.....	.....	*..	2,073	6,463	3,680	.....	7,662	.....	722	24,061	2,458	10.2
1914	.....	7,581	*...	1,164	*.....	*.....	.....	*..	2,440	17,278	4,612	.....	9,278	.....	300	42,653	3,196	7.5
1915	.....	12,836	*...	1,035	*.....	*.....	*.....	*..	2,199	31,666	5,899	*.....	10,554	.....	877	65,365	5,151	7.9
1916	.....	17,159	*...	2,260	215	725	2,113	*..	2,693	43,360	9,715	1,293	18,765	.....	249	103,493	14,331	13.8
1917	.....	28,818	*...	4,934	1,175	3,818	4,980	*..	5,440	115,123	13,826	6,920	32,669	.....	181	217,884	40,189	18.4
1918	.....	32,269	2	4,575	2,390	3,331	7,021	218	6,745	163,701	15,775	7,326	37,604	1,579	.....	282,536	50,364	17.8
1919	.....	40,286	....	6,060	3,284	5,136	10,063	458	8,801	189,895	20,284	9,337	52,150	5,581	.....	351,535	64,197	18.3
1920	.....	48,208	....	6,055	4,331	4,497	10,610	411	10,016	178,857	21,151	32,956	58,941	8,711	.....	384,744	71,788	18.7
1921	.....	58,220	....	7,536	3,587	4,242	15,341	366	9,100	185,341	19,856	77,141	54,646	14,558	.....	449,934	61,815	13.7
1922	4,289	67,120	....	7,760	3,856	5,205	29,406	506	8,600	189,404	18,518	95,405	66,796	19,967	.....	505,832	72,711	14.4
1923	16,183	173,329	....	7,366	8,776	7,601	40,720	408	10,035	270,249	19,132	177,765	63,381	21,292	.....	816,226	77,268	9.5
Total	20,472	490,427	*...	48,735	26,613	34,555	120,254	2,367	71,486	1,398,400	155,956	408,143	411,724	71,688	†2,950	3,263,770	465,067	14.3
Pctg. of total	0.6	15.0	....	1.5	0.8	1.1	3.7	0.1	2.2	42.8	4.8	12.5	12.6	2.2	0.1	100.0	.....	....

*Included under "Miscellaneous." †Includes also Colorado for 1918.



FOURTH ANNUAL CONVENTION
ASSOCIATION OF NATURAL GASOLINE MANUFACTURERS
APRIL 22-23, 1925. TULSA, OKLAHOMA

MEMBER COMPANIES

AKIN GASOLINE COMPANY, Tulsa, Okla.
AMITY GASOLINE COMPANY, Bartlesville, Okla.
AMERADA PETROLEUM CORPORATION, Tulsa, Okla.
ARKANSAS FUEL OIL COMPANY, Shreveport, La.
BARNSDALL OIL COMPANY, Tulsa, Okla.
CHESTNUT & SMITH CORPORATION, Tulsa, Okla.
CARBIDE & CARBON CHEMICALS CORPORATION, New York, N.Y.
CALIFORNIA GASOLINE CORPORATION, Los Angeles, Calif.
CUMBERLAND GASOLINE CORPORATION, Cleveland Ohio.
DEWEY PORTLAND CEMENT COMPANY, Dewey, Okla.
DE SOTO GASOLINE COMPANY, Houston, Texas.
DIAMOND REFINING COMPANY, Kansas City, Mo.
DEER CREEK GASOLINE COMPANY, Tulsa, Okla.
EMPIRE GASOLINE COMPANY, Bartlesville, Okla.
THE EAGLE-PICHER LEAD COMPANY, Henryetta, Okla.
FALLING ROCK CANNEL COAL COMPANY, Charleston, West Va.
HENAGHAN & HANLON, Sistersville, West Va.
HESCO GASOLINE COMPANY, Tulsa, Okla.
HIGHWAY OIL REFINING CORPORATION, Tulsa, Okla.
HURLEY GASOLINE COMPANY, Tulsa, Okla.
LIQUEFIED PETROLEUM GAS COMPANY, Tulsa, Okla.
LOMITA GASOLINE COMPANY, Los Angeles, Calif.
LONE STAR GAS COMPANY, Dallas, Texas.
MARLAND REFINING COMPANY, Ponca City, Okla.
OKLAHOMA EASTERN OIL COMPANY, Tulsa, Okla.
OKLAHOMA GASOLINE PLANTS, INC., Oklahoma City, Okla.
OIL STATE GASOLINE COMPANY, Tulsa, Okla.
PACIFIC GASOLINE COMPANY, Los Angeles, Calif.
PRAIRIE OIL & GAS COMPANY, Tulsa, Okla.
THE PALMER CORPORATION, Shreveport, La.
PHILLIPS PETROLEUM COMPANY, Bartlesville, Okla.
PULASKI OIL COMPANY, Tulsa, Okla.
PAN AMERICAN PETR. & TRANSPORT COMPANY, New York, N.Y.
ROTARY GASOLINE COMPANY, Tulsa, Okla.
ROESER & PENDLETON, Breckenridge, Texas.
STEBBINS OIL & GASOLINE COMPANY, Tulsa, Okla.
SOUTHLAND GASOLINE COMPANY, Tulsa, Okla.
SKELLY OIL COMPANY, Tulsa, Okla.
SAND SPRINGS HOME, Gasoline Department, Sand Springs, Okla.
TEXAS PACIFIC COAL & OIL COMPANY, Thurber, Texas.
TIDAL REFINING COMPANY, Tulsa, Okla.
TRANSCONTINENTAL OIL COMPANY, Tulsa, Okla.
TRIBES GASOLINE COMPANY, Tulsa, Okla.
TWIN STATE OIL COMPANY, Tulsa, Okla.
VICTOR GASOLINE COMPANY, Tulsa, Okla.
WAITE PHILLIPS COMPANY, Tulsa, Okla.
WARREN PETROLEUM CO., Tulsa, Okla.
WENTZ OIL CORPORATION, Ponca City, Okla.
WESTOVA OIL & GAS COMPANY, Mount Vernon, Ohio.

Association Record of Achievement

Secretary Bourque Reviews History of Organization Which Has Won Natural Gasoline Industry Its Present Proud Position.

By A. V. Bourque

If the attendance at the 1923-1924 conventions of the Association of Natural Gasoline Manufacturers may be taken as a criterion, there will be a sharp contrast between the small handful of men who attended a meeting of natural gasoline manufacturers on April 22, 1921, compared to the crowd which will celebrate the association's fourth birthday, April 22-23, at the Hotel Mayo in Tulsa.

Four years ago a few natural gasoline manufacturers met at Tulsa to endeavor to work their way out of a serious condition confronting the natural gasoline industry and one which threatened its very existence. With practically no market for a product thoroughly discredited and with an investment which had already reached large proportions, the manufacturers were hard put to determine which was the proper way to solve their problems. After an all day session, it was decided that individual effort could accomplish nothing and that an association composed of the manufacturers themselves might be a way out of their difficulties; accordingly, a motion to organize was made and carried and that day the Association of Natural Gasoline Manufacturers came into existence. How well the association has functioned is seen today in the condition of the natural gasoline industry. The product improved, and occupying a higher place in the petroleum industry than ever before, it is now recognized not only as a basic commodity but an essential product as well.

The history of the Association of Natural Gasoline Manufacturers is a story of men, thoughtful, earnest and sincere, who have given of their time and money to raise natural gasoline from the depth to which it had fallen to the high plane it now occupies. It is to the loyalty of these men that has made the association's continued growth possible.

Specifications Big Help to Industry

Someone has said that if the Association of Natural Gasoline Manufacturers had done nothing but improve and stabilize natural gasoline through specifications formed and issued by the association, it would have justified its existence. Be that as it may, it is nevertheless true that one of the greatest accomplishments of the organization was the issuing of specifications which completely revolutionized the quality of natural gasoline being marketed a few years ago and established for all time the value of that gasoline as a commercial product.

When the association was formed in April, 1921, natural gasoline was in such disrepute that a market for it in quantities did not exist. Kerosene blends, which had been tried the winter before, had proved so disastrous that the industry found itself demoralized, discouraged and financially embarrassed. There were almost as many grades being manufactured as there were plants making same. The first important work of the association was the attempt to correlate the number of grades into a small number, each grade representing a different but highly satisfactory type of natural gasoline.

The specifications committee, composed of both operating and sales managers, worked for months evolving a set of specifications which would guarantee to the consumer a satisfactory product. So successful were the specifications that a change was apparent almost over night. Within a few months the industry was rehabilitated, the trade was ordering the different qualities by grades as designated by the association and for the first time in the history of the industry a concerted effort was made, not only to improve the quality of the product but to put it on a plane where it would command the respect of the refiner and marketer who purchased same.

As quickly as the industry was pulled down through the various wild products which had been offered before specifications were adopted, just as quickly did the industry recover and from the time the first specifications were issued, August 1, 1921, until today, there has been but little controversy between the buyer and seller over the various grades being offered on the market.

The latter part of 1922 saw some changes in the process of manufacture. The old grades, having served their purpose, had become obsolete; accordingly, on December 1, 1922, the association issued revised specifications which continued in effect until October 1, 1924, at which time additional revisions were made, each one an improvement over the other and more satisfactorily meeting the demands of the trade. This was necessary by reason of the various methods on the market for quieting the product, thus reducing not only loss by evaporation but reducing the hazards as well. At the present time there is a large quantity of high gravity, high recovery natural gasoline being marketed. That quality has the call over the other grades, Grades "Double A" and "A," bringing the best prices.

Active in Vapor Tension Tests

Before the Association of Natural Gasoline Manufacturers was formed, the Bureau of Explosives had in mind the thought of reducing the vapor tension on natural gasoline shipped in standard cars, intending to lower it from 10 pounds to 8 pounds, the idea being that 8-pound vapor tension gasoline was much safer from a transportation standpoint than was the 10-pound product. Immediately after the organization came into being, a committee was appointed to look into the matter of the proposed change and it was decided by the association to make a series of tests to determine whether or not the change would be beneficial from the standpoint of hazards.

With the cooperation of the United States Bureau of Mines and the Bureau of Explosives, the Association of Natural Gasoline Manufacturers made tests of natural gasoline in tanks, in tank cars at loading racks and in tank cars in transit. The American Petroleum Institute, through its special technical committee, also made a series of tests, several thousand samples being tested by that organization. The findings of these committees were such as to show that the added factor of safety of 8-pound vapor tension natural gasoline was negligible as compared to the 10-pound product while the economic loss to the industry would be tremendous. The result was that the Bureau of Explosives has not insisted on the change and many hundreds of thousands of dollars have been saved to the industry.

Has Broadened Its Scope

While the association was formed primarily to help solve the problems of natural gasoline manufacturers so far as actual plant operations were concerned, it has broadened the scope of its activities more and more each year until today it is active in all legislative matters, freight rate hearings and matters of general import which threaten the entire petroleum industry. Together with the Mid-Continent Oil and Gas Association, it sponsored and helped secure legislation making it a felony to tap a natural gasoline line, which legislation was sorely needed as manufacturers were losing thousands of dollars each year in Oklahoma alone in wasting of natural gasoline through line tapping. It was also active in securing favorable safety first regulations in Oklahoma.

Some months before the opening of the International Petroleum Exposition, the Association of Natural Gasoline Manufacturers decided to exhibit a miniature natural gasoline plant at the big industrial show. A volunteer committee of the association labored for weeks to get the little plant in shape. Models of various natural gasoline equipment were generously donated by the makers thereof, and on the day the exposition opened, the miniature plant was running in full blast demonstrating how natural gasoline is made. The plant, built 1 inch to the foot, was complete in every detail and evoked many words of praise from all who inspected it, which is equivalent to saying practically everybody who came into the exhibition grounds. Thus was the story of natural gasoline told to refiners and marketers, many of the latter never having seen a gasoline plant before; therefore, not appreciating the magnitude of the natural gasoline industry.

Telling its story to the refiners and marketers has been one of the principal aims of the association; papers have been prepared and read at refiners, marketers and automotive engineers' conventions. Today it is accepted generally as a legitimate product of petroleum and has established a place in the general scheme of the petroleum industry.

In addition to the annual conventions, which have been held in Tulsa the past four years and the plant operator's meetings in the field, the association has held two large divisional meetings, one in St. Louis and the other in Fort Worth, and will, no doubt, hold a fall meeting this year.

Is a National Organization

The membership of the Association of Natural Gasoline Manufacturers is national, the organization having members in Oklahoma, Kansas, Texas, Louisiana, Arkansas, Ohio, West Virginia, New York and California. From a small gallonage represented by the association at its inception, the organization has grown until its members now represent nearly 60 per cent of the entire production of the United States. A campaign for members is to be launched this year and it is hoped before it is over that every natural gasoline producing State will be represented in the organization.

The credit for the success of the association is due to the splendid loyalty and cooperation of all the members, together with the interest manifested in the organization by the executive committee. In this connection, it is proper to mention the splendid service rendered by the men who have served as presidents since the association was formed, W. M. Welch serving two terms and D. E. Buchanan just completing his second year in that capacity. The interest taken and time given to association affairs by these gentlemen have been factors in the association's accomplishments.

The 1924 convention program, for the first time, set aside a half-day session given over entirely to the plant operators' problems. It met with such success that it was decided to hold a number of meetings in the fields so that the plant operators who were unable to attend the annual conventions would have sessions they could attend and participate in. The plan was carried out and a number of such meetings were held last year with marked success. It is the intention of the association to resume these meetings shortly after the close of the 1925 convention.

The conventions of the association have been given over almost entirely to the solution of plant problems. Conditions which are met every day by the men in the field have been discussed and, in many instances, remedies which, put to practice, have done much to make the operation of natural gasoline plants more efficient. The association has worked largely toward more efficient operation and there is no doubt but that the papers read and discussed at the convention have proved of inestimable benefit to the entire industry.

OFFICIALS

FRANK L. CHASE,
Vice President,
Dallas, Texas

A. M. BALLARD,
Vice President,
Tulsa, Okla.

D E BUCHANAN,
President
Tulsa, Okla.

O. W. CRICK,
Treasurer,
Tulsa, Okla.

A. V. BOURQUE,
Secretary,
Tulsa, Okla.

Convention Photographs Taken During First Day's Session

Left to right—I. V. Horner, Industrial Construction Co.; B. M. Nowery and F. L. Rhoades, Palmer Corp.

O. W. Everett, Manager, Mayo Hotel

Left to right — A. C. Taylor, Central Texas Petroleum Co.; T. C. Andrews, American Car & Foundry Co.; A. L. Smith, Home Gas Co.

Left to right—J. K. Gibson, O. M. Setrum and L. J. Dales, Phillips Petroleum Co.; L. C. Converse, Lynn C. Converse Co.

Roy W. Terry Oil State Gasoline Co.

Left to right—G. L. McCormick, Roeser & Pendleton; W. K. Warren and J. A. La Fortune, Warren Petroleum Co.

Left to right—H. H. Howard, Allied Chemical Co.; Howard Hunter and W. E. Reardon, Southern Carbon Co.

Left to right — J. W. Crowe, Chestnut & Smith Corp.; F. I. Thompson, Westcott & Greis; H. R. Campbell, Phillips Petroleum Co.

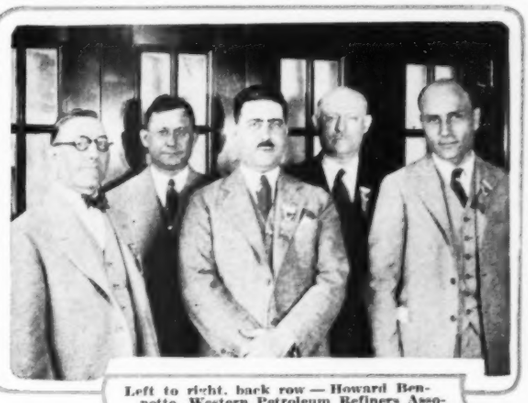
Left to right—W. A. Schuleter, The Refinery Supply Co.; J. B. Simier, The Bruce Macbeth Engine Co.; Henry Jungerman, C. J. Tagliabue Co.; C. L. Swim, Skelly Oil Co.

Left to right, back row—Paul C. Coffin, J. R. Jarvis, J. F. Byas. Front row—Paul Wright, J. D. Roberts, all of Lone Star Gas Co.

Convention Photographs Taken During First Day's Session

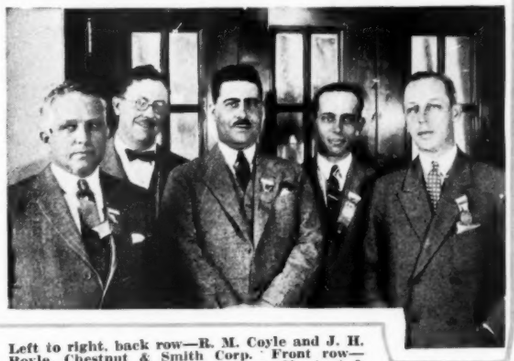
Left to right — Harrison Young, Sand Springs Home Gasoline Dept.; R. W. Patterson, North American Car Co.; N. M. Muir, J. F. Prichard Co.; S. R. Scott, Bureau of Explosives

G. G. Oberfell Phillips Petroleum Co.



Left to right, back row — Howard Bennette, Western Petroleum Refiners Association; Frank L. Chase, Lone Star Gas Co. Front row—A. V. Bourque, Association of Natural Gasoline Mfrs.; D. E. Buchanan, Chestnut & Smith Corp.; K. L. Reynolds, Pacific Gasoline Co.

S. C. Carney, Roxana Pet. Corp.



Left to right, back row—R. M. Coyle and J. H. Boyle, Chestnut & Smith Corp. Front row—F. G. Yonker and D. E. Buchanan, Chestnut & Smith Corp.; E. I. Hanlon, Hanlon Gasoline Co.

Left to right, back row—E. F. Hastings and Clifton Voris, Barnsdall Corp. Front row, sitting—A. J. Schlosser, Barnsdall Corp.; R. R. Dean, Waite Phillips Co.

Left to right—O. H. Schoenwald, Wentz Oil Corp.; G. B. Smith, Westcott & Greis; G. L. Ford, Phillips Petroleum Co.

Left to right, back row—John W. Hurley, Hurley Gasoline Co.; D. A. Robbins, Bessemer Gas Engine Co.; Frank P. Peterson, Mid-Continent Petroleum Corp. Front row—D. C. Canter, Gasoline Recovery Corp.; T. F. Hudgins, C. & G. Cooper Co.; C. E. Lermond, Gasoline Recovery Corp.

Left to right, back row —E. G. Johnson, H. H. James, P. G. Kennett. Front row, sitting— E. L. Estes, F. H. Crawford, all of E. I. Du Pont, De Nemours & Co.

Left to right, back row — O. J. Berend, Skelly Oil Co.; H. F. Miller, Carter Oil Co. Front row—E. L. Peck, Empire Gasoline Co.; John M. Hall, Oil State Gasoline Co.; R. R. Owens, Mariand Refining Co.

MEMBERS

H. A. TROWER,
Phillips Petroleum Company,
Bartlesville, Okla.

E. L. PECK,
Empire Gasoline Co.,
Bartlesville, Okla.

R. E. BERING,
California Gasoline Corp'n.
Los Angeles, Calif.

R. R. DEAN,
Waite Phillips Co.,
Tulsa, Okla.

MEMBERS

E. I. HANLON,
Smith-Hanlon, Inc.
Tulsa, Okla.

A. J. SCHLOSSER,
Barnsdall Oil Company,
Tulsa, Okla.

A. E. HURLEY,
Hurley Gasoline Co.,
Tulsa, Okla.

DEAN E. FOSTER,
Deer Creek Gasoline Co.,
Tulsa, Okla.

MEMBERS

FRANK L. CHASE,
Lone Star Gas Company,
Dallas, Texas

D. E. BUCHANAN,
Vice President,
Chestnut & Smith Corp'n.,
Tulsa, Okla.

H. C. TYRRELL
Pulaski Oil Company,
Tulsa, Oklahoma

R. P. HUMES
Transcontinental Oil Company
Tulsa, Oklahoma

MEMBERS

O. W. CRICK,
Highway Oil Refining Corp'n.,
Tulsa, Okla.

W. A. MELTON
J. A. Hull Interests,
Tulsa, Oklahoma

A. M. BALLARD,
Sun Company,
Tulsa, Okla.

E. R. LEDERER,
Texas Pacific Coal & Oil Co.,
Fort Worth, Texas

MEMBERS

O. H. SCHOENWALD,
Wentz Oil Corporation,
Ponca City, Okla.

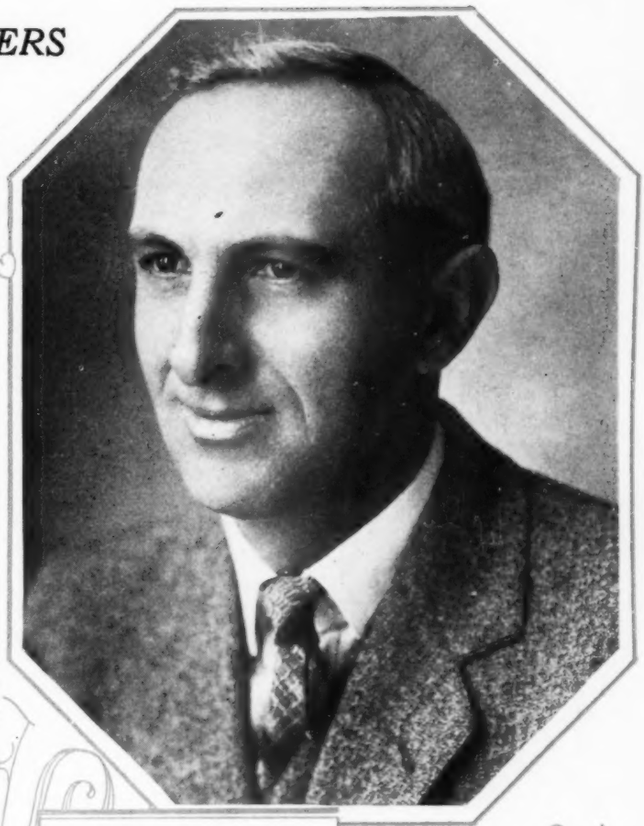
JAMES B. WEIR,
Falling Rock Cannel Coal Company,
Charleston, W. Va.

F. L. RHOADES,
The Palmer Corporation,
Shreveport, La.

R. R. OWENS,
Marland Refining Co.,
Ponca City, Okla.

MEMBERS

J. M. STORY,
Hasco Gasoline Co.,
Tulsa, Okla.



W. N. CORBET,
The Eagle-Picher Lead Co.,
Henryetta, Okla.

DON M. TYLER,
Dewey Portland Cement Co.,
Dewey, Okla.

F. S. WADE,
Lomita Gasoline Co.,
Los Angeles, Calif.

MEMBERS

R. J. LINDSAY,
Westova Oil & Gas Co.,
Mt. Vernon, Ohio,

H. R. JOHNSON,
Aiken Gasoline Co.,
Tulsa, Okla.

KENYON L. REYNOLDS,
Pacific Gasoline Co.,
Los Angeles, Calif.

H. G. ELLIS,
Amity Gasoline Co.,
Bartlesville, Okla.

MEMBERS

JOHN M. HALL,
Oil State Gasoline Co.,
Tulsa, Okla.

J. A. RAFFERTY,
Carbide & Carbon Chemicals
Corp'n.
New York, N. Y.

B. E. BLANKENSHIP
Liquified Petroleum Gas Co.
Tulsa, Okla.

W. K. WARREN
Warren Petroleum Co.
Tulsa, Okla.

MEMBERS

EMBY KAYE,
Skelly Oil Company,
Tulsa, Okla.

L. C. RITTS,
Oklahoma Eastern Oil Co.,
Tulsa, Okla.

L. F. BAYER,
Tidal Refining Co.,
Tulsa, Okla.

C. E. NELSON,
Stebbins Oil & Gasoline
Company,
Tulsa, Okla.

MEMBERS

W. B. FLYNN,
DeSoto Gasoline Co.,
Beaumont, Texas

H. H. YOUNG,
Sand Springs Home-Gasoline Dept.,
Sand Springs, Okla.

B. P. CAVNAR,
Oklahoma Gasoline Plants, Inc.,
Oklahoma City, Okla.

W. H. GRAY,
Tribes Gasoline Company,
Tulsa, Okla.

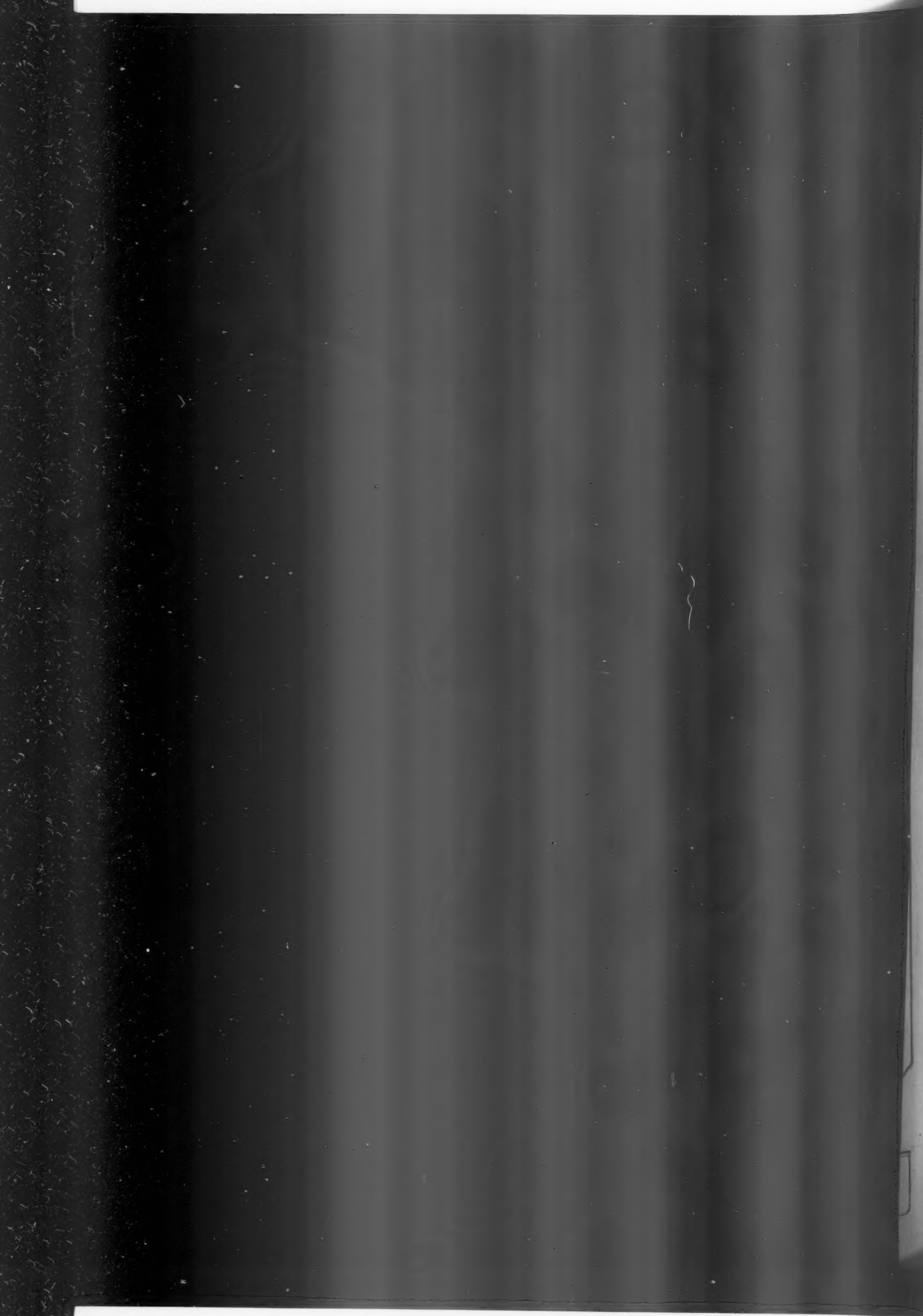
AMONG THE SPEAKERS

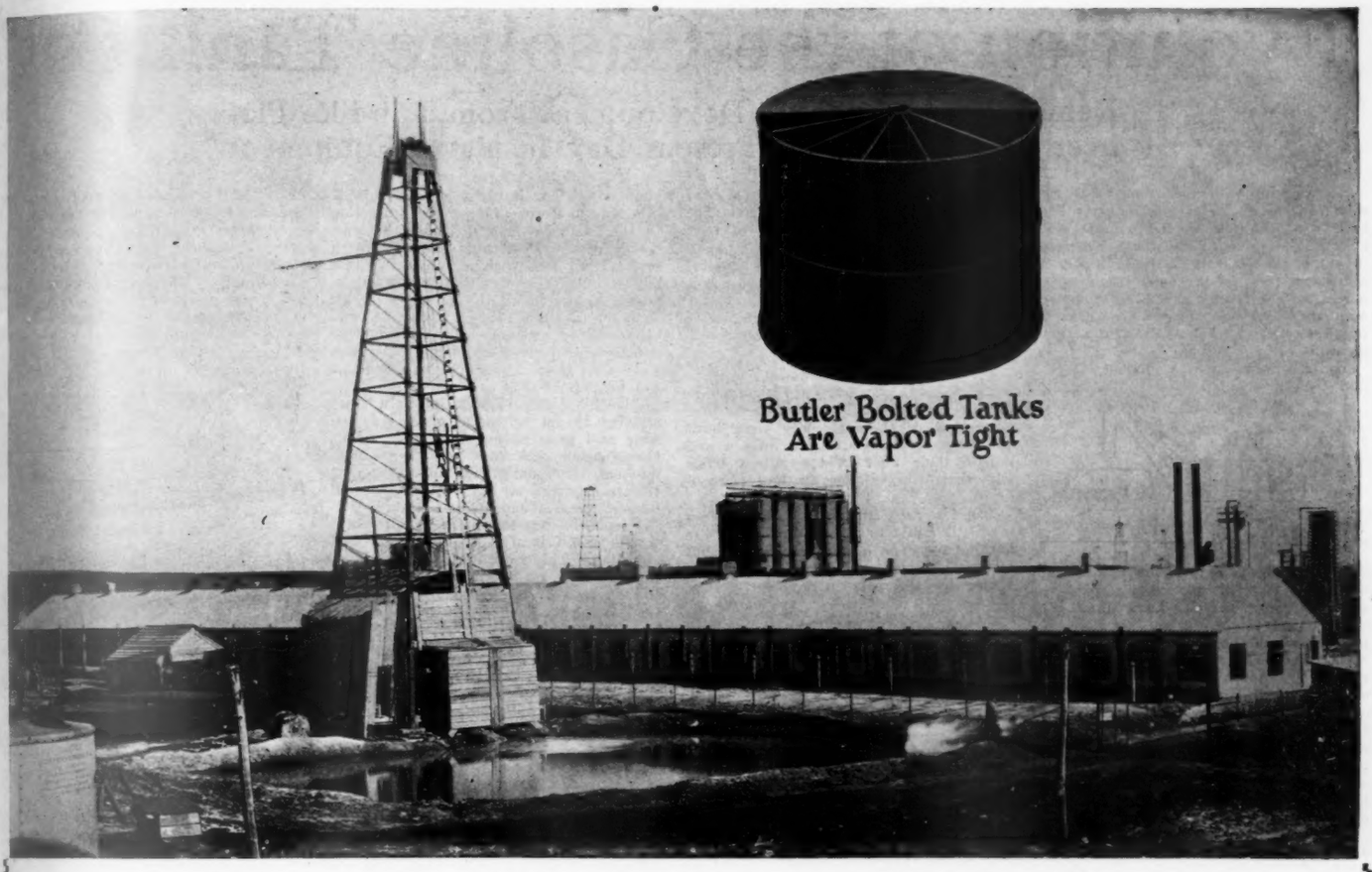
A. F. MAXSON,
Sun Company

C. L. SWIM,
Skelly Oil Company

HORACE H. HAGAN,
Attorney at Law

JAMES A. VEASEY
Carter Oil Company





Butler Housing for Casing Head Gasoline Plant of One of the Larger Companies in the Oklahoma Field (34' x 384')

This building was small at first. When occasion arose for the company to expand the building, it was added to very easily and quickly. It is now 384 feet. But it can be added to again when desired. Adding to Butler *Ready-Made* Steel Buildings is not an engineering feat. Unskilled labor can erect or dismantle them.

Butler *Ready-Made* Steel Buildings

Ideal housing for casing head plants!

Butler Ready-Made Steel Buildings are particularly adapted to casing head gasoline plants or any oil field use. They are permanent or portable, and can be added to or made smaller. Practically 100% salvage.

Similar Parts Interchange

On account of the perfected design of these buildings similar parts are interchangeable. This allows easy and speedy and cheap erection. Even unskilled labor can put them up. And no special design or plan is needed.

Casing Head Plant Equipment

We also furnish pressure tanks, absorbers, scrubbers—in fact, complete tank equipment for casing head plants as well as welded and bolted type tanks for oil field and bulk station use. Attractive prices on request.

Dealers, advantageously located, are: M & V Tank Co., at Wichita Falls, Vernon and Olney, Texas; Drane-Humphrey Co., at Fort Worth and Big Lake, Texas, and Carlsbad, New Mexico; Drane Tank Co., at Tulsa and Holdenville, Oklahoma; May Tank & Supply Co., at Casper and Salt Creek, Wyoming; M. A. Trimmer at Blackwell, Oklahoma; Wilson Tank & Culvert Co., at San Antonio, Texas.

STEEL PRODUCTS

Butler Manufacturing Company

Kansas City, Mo. **Minneapolis, Minn.**

Other BUTLER Products

Underground Tanks, Storage Tanks, Cans, Funnels, Buckets, Measuring Pumps, Etc.

Evolution of the Gasoline Tank Car

Remarkable Changes in Development From Tub-like Pioneer Transportation to Present Day Insulated Equipment

Keeping up with the tremendous development of the petroleum industry has been the evolution in the manufacture of tank cars, especially those designed to transport natural gasoline. From a crude tub-like affair, petroleum transportation equipment has been moulded and remoulded into the modern form of tank car, which can be seen any time on any railroad siding.

To strangers to the industry, the

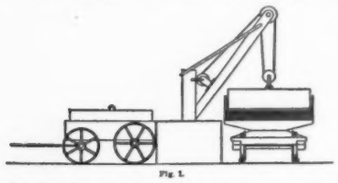


Fig. 1.

change from the old to the new might not be considered particularly remarkable but to those who know tank car construction the evolution has been as pronounced as the modern automobile is different from the first "horseless carriage." The old, crudely constructed tub on railroad car trucks was put together only as a makeshift to haul crude oil from the wells to refineries. The modern tank car has been designed to embody safety to those handling it, economy in transportation of petroleum and its products and convenience in long distance movement.

The expansion of the petroleum industry since the coming of the internal combustion engine has brought about the change and increase in the use of tank cars. At the beginning of the oil business, possibly only crude oil had to be transported by way of railroad. As the demand for refined products has grown by leaps and bounds, so has the need of more and more tank cars and better transportation equipment been felt.

And yet, the evolution is not complete. When the first insulated cars were designed a comparatively short time back, the oil industry and the manufacturers thought the zenith had been reached. But the insulated Class IV tank cars in service today for the transportation of natural gasoline are very much different from the original insulated carrier.

Evaporation at Minimum

Designed to hold evaporation of highly volatile products to a minimum and assure the utmost safety to those handling the equipment, there are 8,000 insulated Class IV tank cars in service today transporting natural gasoline.

The general principle of Class IV cars is the same as the first insulated cars, having the standard car tank within insulated with No. 2 hairfelt and ⅛-inch steel outer jacket, but the accessories are entirely different. A special fool-proof dome cover is in use today on cars built by the General American Tank Car Corp. This cover cannot be removed so long as internal pressure is exerted, and cannot be turned until the pressure has been relieved. Many improvements have been made in the jacket so far as fit and water tightness is concerned. These features are of great importance to insulated tank cars because if the cars are not fitted correctly the dampness attacks the hairfelt, which would deteriorate very rapidly.

The tank cars built today are of heavier construction so they will stand up in service. Heavier freight cars of greater capacity are being used; consequently, the Class IV tank car must be built according so the abuse meted out to it will not cause more rapid depreciation than on the other types of freight cars.

The insulated tank car originally built for casinghead gasoline gradually is coming into use for other commodities. The loss in evaporation is proved to have been reduced to a comparatively small figure, causing a great saving to shippers and railroad carriers. The experiences in shipping casinghead, which is highly volatile, are being put into practice more and more in designing better tank cars for other products.

Freak Designs

The history of tank cars abounds in freak designs proposed from time to time. Some few of these actually were built but most of them still are unborn and mingle their dust in the patent office with that of other babes in the inventors' brain.

The first tank car, about which modern tank car builders have knowledge, was nothing more or less than a simple flat car constructed a certain size to haul twelve 5-barrel containers of petroleum.

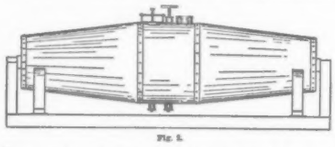


Fig. 2.

The only thing which distinguished a tank car from the ordinary flat car was the fact that it was built so that the 12 containers would just fit snugly, and the fact that it had clamps attached for holding the containers. Ordinary flat cars would have been off size. The containers could be lifted by derricks from wagons into the cars and also from the cars to the wagons. This type of car is shown in Figure 1.

Between this type and the second model of tank car of which there is a record was quite a jump. This second car took somewhat the form of the modern tank car and it is from this type that the modern car is patterned. However, this design was very crude. It was simply a wooden barrel large enough for a whole car. It was mounted on trunnions and it would be interesting to hear the opinions of the present day tank car builders on the bracing against end shifting.

In building this type of tank car, no thought was taken of evaporation. In fact it was hardly necessary at that time as most of the use of tank cars was confined to the crude oil. Transporation of the refined products, which are more subject to evaporation, was in its infancy. Fire hazards also were very great and the life of the wooden tanks were short. These wooden tank cars are illustrated in Figure 2.

Simplicity Sought

Simplicity itself was demonstrated in what is considered the next definite step in the development of the tank car. This simple tank car is pictured in Figure 3. Someone paid good money for protection in the exclusive right to build this car. This type was nothing more than a metal lined box with a spigot to draw off the load. The car was oblong but in reality answered all the needs of the oil industry at that time. Gasoline and other refined products were hauled quite extensively in these cars but great losses were felt as a result of the enormous evaporation.

All this time, biulders of cars were striving to get as useful a car as possible and save space, time and money. Combination tank cars were considered. At that time many did not think that the transportation of petroleum would become general enough to justify building separate cars so sought to build cars which would haul most everything and anything. This resulted in the combination car idea as shown in Figure 4.

This type of car did not prove practical for reasons which can be seen readily. The car consisted of an ordinary box car with a tank reservoir provided under the floor and between the trucks. It was found that the odor of kerosene or other oil easily found its way to the box car compartment above and as a whole the design was not succesful.

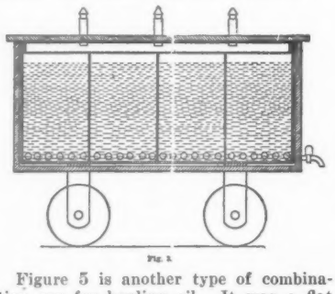


Fig. 3.

Figure 5 is another type of combination car for hauling oil. It was a flat car with a compartment for petroleum. It also did not meet the needs of the shippers and the railroads. As a result tank car builders again turned to tank cars designed exclusively for petroleum and refined goods. By this time it had been ascertained that oil shipping was almost an industry in itself.

With tank cars now multiplying rapidly, the necessity of closer supervision of their design became evident. There was virtually no standard previous to 1903. If the running gear passed inspection it was presumed the tank must be all right. In that year the M. C. B. association adopted new and more particular rules which continued with only minor changes until 1916.

Classifying Cars

Within that period the petroleum industry had expanded so greatly and the variety of refined products had increased to such an extent that it became necessary to classify tank cars according to their intended service and prescribe rules accordingly. The hardships which the new rules produced in some cases, being much aggravated by the enormous increase in demand for steel with the accompanying high prices and difficult deliveries, moved the tank car committee

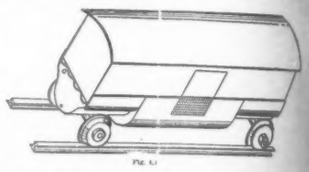


Fig. 4.

to modify and soften the requirements. But even as modified, the rules now require a high standard of cars that may continue in service.

The development of the casinghead industry perhaps is causing one of the greatest changes in tank car construction and spurring builders to design a more nearly perfect car. The casinghead business has developed the insulated tank car. This is virtually a double tank, an inner tank of heavy construction wrapped in the best insulating material obtainable and surrounded by a steel tank of lighter material, all very carefully built and made weatherproof.

This type of car makes possible the shipment of highly volatile products for long trips in extremely hot weather without the temperature of the contents rising more than two or three degrees. The actual saving from the decrease in evaporation of the contents has been found to be so large that the increased cost of the car is quickly made up.

What the future holds in store for tank car construction is a matter of speculation as tank car builders and engi-

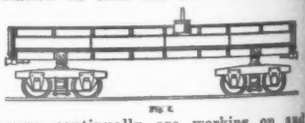


Fig. 5.

neers continually are working on and planning new and better models to meet the growing needs of the petroleum industry.

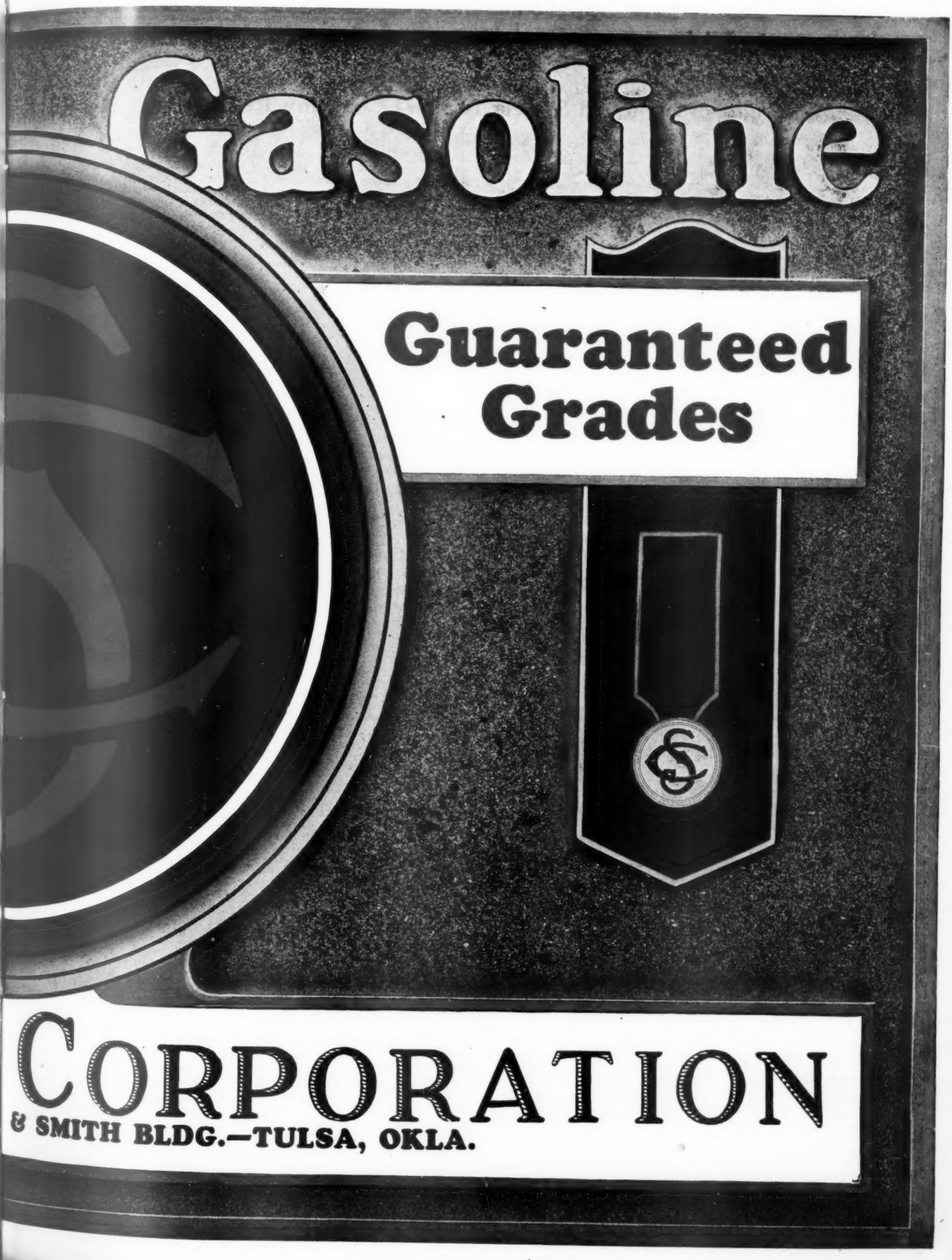
View of a modern tank car.

TRADE ASSOCIATION TEST CASE PROPOSED

NEW YORK, April 18.—An entirely new case may be selected by Attorney General Sargent for presentation to the Supreme Court in an effort to obtain a comprehensive interpretation of the legal status of the collection and dissemination of statistics by trade associations, it was said at the Department of Justice. Mr. Sargent has turned his attention to the question of trade association activity in the light of the "anti-trust" laws, it was indicated.

Spokesmen for the new attorney general explained that, as he understands the situation, not having yet been able to study the matter carefully, there appears to be considerable doubt relative to the legality of the compilation and dissemination of current statistical data by an organization in any industry. Mr. Sargent is aware the matter has been before the department for some time and that his predecessor, Justice Stone, thought it might be possible for a test case to be made in connection with some pending anti-trust litigation.

This may be the way out, in Mr. Sargen't opinion, although it was emphasized at the department he has but limited opportunity yet to consider the various phases of the question.


Gasoline
Guaranteed
Grades
CORPORATION
& SMITH BLDG.—TULSA, OKLA.

Uniform Cost Method Questionnaire

American Petroleum Institute Committee Reports Progress in Study of Improved System for Oil Company Records

By L. M. Fanning

Following a meeting in New York last week of the regional chairmen comprising the committee on uniform methods of oil accounting of the American Petroleum Institute, a list of questions has been sent out for consideration of the industry. After comment has been received from all companies or individuals interested, a general questionnaire will be prepared and submitted to the industry.

After the industry has been fully circularized and opinions collated, a specimen balance sheet will be issued. Rodney Durkee, comptroller of the General Petroleum Corp., chairman of the Pacific Coast regional committee, and member of the general committee, with M. W. Mattison, director of the division of taxation and accounting of the institute, have been instructed to draw up the specimen balance sheet and to have it ready for presentation to the general committee and the industry by the latter part of May.

The statement issued by the institute giving the progress made in uniform accounting work and listing the questions sent out to the industry follows in full:

Statement by Institute

"The preparation of a uniform accounting system for use by such persons in the industry as may desire it is being actively carried forward by the committee appointed at the last annual meeting of the American Petroleum Institute.

"The cooperation of the industry in collecting and assembling the facts and determining the problems encountered by the individual companies is essential to the complete success of the committee's work.

'As a result of the work to date several of the chief accounting officers of the larger companies have submitted certain questions which indicate to the committee that a general questionnaire should be prepared and submitted to the entire industry. Before preparing this questionnaire, the committee desires that every one in the industry shall have an opportunity to cooperate in this work. Will you, therefore, prepare and forward to the committee, in duplicate, all accounting questions or problems which may occur to you.

"We append a list of some of the questions heretofore submitted to the committee which are here given for the purpose of informing the industry of the general character and scope of the questions to be considered.

"The general questionnaire will be sent to all accounting officers and when the replies shall have been analyzed and the consensus of opinion determined on each point, the conclusions will be incorporated in the final manual of system and procedure.

"Your list of questions (in duplicate) should be sent to your regional chairman not later than April 30. The regional chairmen are as follows:

Pacific Coast—Rodney Durkee, General Petroleum Corp., Los Angeles, Calif.

Rocky Mountain—George F. Smith, Mutual Oil Co., Denver, Colo.

Mid-Continent—George F. Winters, Phillips Petroleum Co., Bartlesville, Okla.

Appalachian—C. H. Jay, Pure Oil Co., Columbus, Ohio.

Texas—L. S. Sinclair, Magnolia Petrolem Co., Dallas, Texas.

New York City—Harold Butt, Tide Water Oil Co., 11 Broadway, New York City.

(Signed) M. W. MATTISON,
General Chairman.

Questions

Producing Oil and Gas

1. Is the production department given credit for the value of the oil produced at the posted, price, charge being made when the oil is transferred from leases to pipe lines, refineries or other storage account or crude fuel delivered to marketing stations for sale? If not, what basis of value is used?
2. What value is used for charging drilling or production accounts when oil produced is used as fuel on leases?
2. Is the casinghead gasoline department operated as a part of the production department or as a separate department or under the control of the refining department?
4. How should lease bonuses paid out of production be handled? Should these be capitalized or treated as royalty?
5. How do you treat rentals and revenues derived from sales of gas or water, dehydrating for others, etc.?
6. How do you handle inventory adjustments of materials and supplies?
7. Should undeveloped leases be amortized, and if so the basis thereof?
8. Do you make provision for a uniform percentage for depreciation of tangible value of field facilities or do you depreciate same in accordance with the production decline curve?
9. Do you keep accounts of field operating and drilling wells in your field district offices or at the head office?
10. On what basis should departmental expense and general overhead be apportioned as between plants?

Steamship Transportation

11. Upon what basis do you charge transportation against other departments?
12. Should oil shortages apparently occurring in transit be charged against the vessel operations?

Refineries

13. On what basis is crude charged against the refinery?
14. How is indirect refinery expense determined and allocated to production?
15. How is departmental overhead, general overhead, and taxes apportioned to the various refineries and then subsequently distributed to cost of production?
16. What is the basis of distribution of pumping expense?
17. Is depreciation computed at varying rates and charged to individual units and classes of equipment, or is a flat rate of depreciation used for all facilities?
18. What basis is used to distribute overhead applicable only to the manufacture of lubricating oils and greases?
19. Do you keep detail production and financial accounts at the refinery or at the head office?
20. Upon what basis are oil inventories valued?
    (a) Do you value your stocks of finished products at refineries at actual cost of production or what other basis is employed?
    (b) Are marketing station inventories valued at cost of production plus transportation or at the current market price less marketing expense or on any arbitrary basis?

Marketing Expense

21. What is marketing expense? Does it include executive and general administrative expense, in addition to direct expense?
22. If so, how are the following prorated as between (1) distributing points and (2) commodities?
    (a) Department overhead.
    (b) General administrative overhead.
    (c) Taxes, local and general.
    (d) Employe's welfare expense, such as sick benefits, insurance or provident funds.
    (e) Employes' share of profits.
23. On what basis is advertising apportioned and to which products?
24. What basis is used to determine cost of marketing by different methods, such as
    (a) Deliveries direct from refineries or crude fuel from field to customers?
    (b) Deliveries from marketing stations?
    (c) Deliveries from service stations?
25. How are stock losses handled when occurring at
    (a) Marketing stations?
    (b) In transit between marketing stations?
    (c) In transit from refineries to marketing stations?
26. Where is revenue derived from subletting portions of service station

(Continued on Page 120)

WATER IS ONE OF MOST IMPORTANT FACTORS IN OIL FIELD OPERATION

In the minds of many who are far removed from the zones of production, there seems to dwell the happy illusion that when the oil bearing sand is penetrated by the bit, and the golden fluid spouts forth in prodigious quantities, the troubles are over, the worries ended, and little remains but to reap the harvest.

This hallucination which is prevalent in the minds of many who, through ownership of oil securities are deeply interested in the petroleum industry, would be very easily and very quickly dispelled by a visit to one of the major producing pools in Oklahoma, particularly during the time of the pool's development.

Far from being the end of the battle, the discovery of the much sought fluid marks only the beginning, and the troubles and annoyances attendant upon the development of a large oil field, dwarf completely the irritations and vexations which accompany the drilling of a well, and which themselves are sufficient to tempt the patience of a saint.

First there arises the problem of transportation, of quickly getting to the scene of activity the necessary supplies. Then come the matters of housing conditions for the drilling crews and other employes, and the erection of the boarding houses, which needs must be accompanied by the entry of a crew of "hashers" to serve the hungry hordes.

Camp conditions must also be considered, and some degree of sanitation (generally very limited) must be provided if the workers are to be protected against fevers and other ills which spring from unsanitary conditions.

Water Supply Big Factor

In all the above named phases of development, one of the most important factors is a good supply of water; but these phases fade into insignificance as far as water supply is concerned when compared with the need of water in actual operations. Dozens of thirsty boilers must have their voracious thirsts quenched with this element if they are to produce the steam that makes the beam nod to and fro, and swings the tools. The water barrel that adorns the derrick floor must be kept filled and the necessary water introduced to the bottom of the hole if the proper mixture is to be maintained at the point where the bit tirelessly pounds its way through the rocks, and the driller is to turn out his proportionate share of "screw."

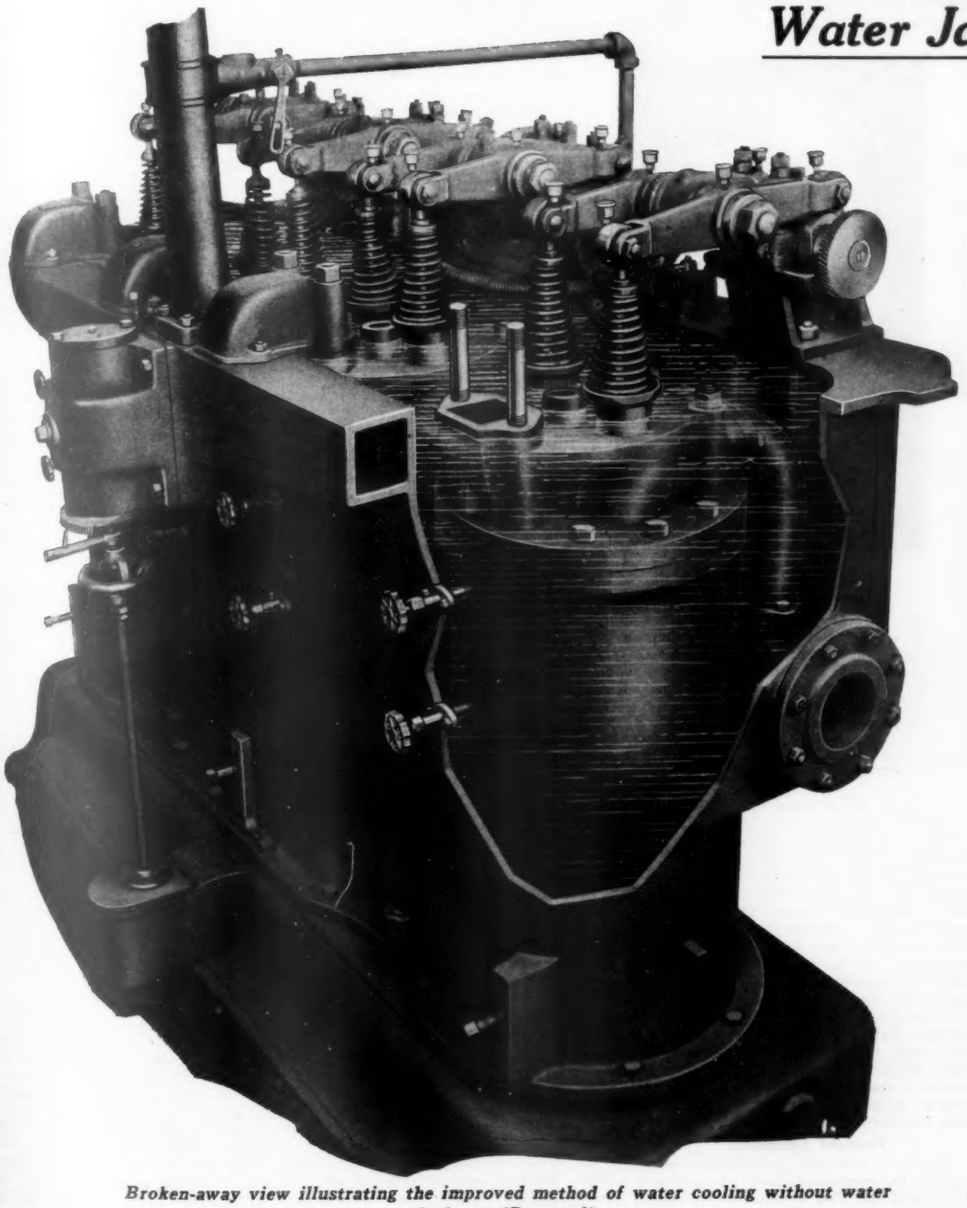
In Oklahoma oil fields during the long dry spells, water is guarded with a zealousness typical of the Sahara. Once when the writer was a grimy "toolie," the scorching sun had completely dried up the surface until cracks appeared upon the prairies of Tiger Flats, he remarked to the driller, his companion of the derrick, that it was certainly a dry summer. The driller, a grizzled veteran of Cushing days, shifted his normal ration of "Mail Pouch" and laconically replied: "Hell, son, there's bull-frogs out

(Continued on Page 120)

The Charlotte Reservoir of the Phillips Petroleum Co.

Bruce-Macbeth Gas Engines of Advanced Design

A water-cooled Gas Engine without Water Jackets



Broken-away view illustrating the improved method of water cooling without water jackets—(Patented)

These engines are the nearest approach to the ideal power plant.

Embodying the latest features of engineering design they are proving in daily service in almost every field their superiority.

For economy of fuel consumption, ease of operation, responsive speed regulation and dependability of operation they are not excelled by any other power plant.

Equipped with special type mixing valve and governor, giving a positive fuel mixture and governor control. They are ideally adapted to A. C. or D. C. generators either direct connected or belted, under all load conditions.

Ask us for location of installations where you may see these engines at work. In one booster station we can show 16 of these units in operation.

Catalog upon request.

Bruce Macbeth Engine Co.

J. B. Simler, Dist. Mgr.
209 South Cincinnati
Tulsa, Oklahoma

Main Offices and Works
Cleveland, Ohio.

Value of Public Relations Department

New Profession Developed as Result of Economic Changes to Maintain Contact Between Business Institutions and Public

By George M. Cook
*Manager Personal Relations, Standard Oil Co. (Indiana)**

Public relations is a new profession, if not the newest of any having to do with business. And there is still a great field ahead—a field which has thus far hardly been scratched. It must be remembered that public relations has but recently developed into a distinct profession. There are many big corporations today that still do not realize the value of a Public Relations Department. There are many that still think they need not be interested in the public. They are unaware that the public is becoming more and more interested in their work every day, and that unless this interest is returned, trouble is likely to be encountered.

I want, first of all, to make it plain that I am not talking so much of great things accomplished as of great things to be accomplished. I make no claim that the field of public relations has been developed to its most beneficial stage. I make no claim that, simply because the field of public relations now has come to be recognized, all corporations have taken the maximum advantage of it. Rather do I wish to show you that the first furrows have been turned with the utmost success and that there is every reason to believe that soon the entire field will be under profitable cultivation.

This new profession has developed as a result of new economic conditions as well as from a change in the view point of progressive executives of large corporations with reference to their attitude toward the public. It has progressed quietly, almost unobstrusively. Yet I venture to say that nothing more important to the future of American business has developed in recent years. One reason for its recognized standing in the country is that the managements of many large businesses and corporations want the public to have the proper understanding of the policies of their companies and an intelligent comprehension of the problems with which they have to deal.

Good Will

No up-to-date business executive today desires to ignore the public. He prefers good will rather than ill will. The old idea that it was none of the public's business what a corporation did, and that the business world would be run without regard for the public's interests—that idea has gone forever. It has gone because, frankly, the growing power of public opinion would not tolerate it. Popular resentment found expression in indiscriminate and unthinking hostility to corporations simply because they were corporations. Trace the political movements inimical to business during the past half century, and what do you find? Usually they were due either to misunderstanding, or perhaps even disregard by business of individual rights in the amazingly rapid development of our industrial structure or, especially in recent years, to distrust and enemity founded on misinformation or misunderstanding, which were the two weapons of political demagoguery. The more farsighted executives have been quickest to realize the necessity of meeting that antagonism by candidness.

So this development has meant a new relationship between American business and the American people based on a vastly superior understanding of their common interests. In it reposes the major hope for commercial, industrial, and economic stability. Where knowledge abides misunderstanding finds no ready shelter.

Since constructive publicity is the backbone of this new policy, its need in every organization is evident. Corporations and large businesses always have had their legal counsel, their financial counsel, their engineering counsel, and other counsel, and I was convinced a long while ago that publicity counsel was just as essential to big institutions as any other kind of counsel, and no department in any business is more important that that of public relations. As the thing necessary for the prosperity and success of a business is the confidence of the public, there should be an avenue, a place of contact between business institutions and the public.

Changed Conditions

Changed economic conditions, as I said in the beginning, have also created a demand for this profession of public relations. In the old days, the owner of a business knew all his employes by their first names, how many children they had, when they were born, their ages, and all that sort of thing. This man was also well known throughout the community. He usually was sole owner and managed the business alone. If he had a board of directors, it was small. For instance, when John D. Rockefeller started in business, he, no doubt, knew all his employes by name and was on rather personal terms with them. Today, one of the factors which makes this impossible and keeps the business executive from being understood is the large foreign population in this country—a group made up of people who are likely to have no common ancestry, no common traditions, and no cohesive intelligence. Many times these individuals live in different traditional, moral, and spiritual worlds, all of which hinders communication with groups of this sort. "When the worker was of the same ancestry as his employer, labor difficulties, for example, could be discussed in terms which were comprehensible to both parties. Today, the United States Steel Corp., no doubt, must exert tremendous effort to present its view to its thousands of employes who are made up of many nationalities and races with their own ideas of government." Nearly all of these various groups have different points of view and must be reached.

Moreover, in matters of public relations, business executives have not had the training. They know practically nothing about how a matter should be presented to the public. They know nothing about distribution of information or news channels. Not very long ago, an executive of a large corporation, in discussing the question of giving out certain information, said that it would be all right if it wasn't printed until the following week, but he was told that, if it wasn't made public at once, it would be dead matter the next day. But it is easy, when one thinks a moment, to understand his attitude. because he had not been trained in that line of endeavor.

In recent years, too, there have been great consolidations of business units into large corporations, which has made it impossible for the management to maintain the contact with the public that is so much desired. That personal contact with the employes, which the old executives had, has passed out, because most of the executives or boards of directors of corporations are so busy with their work that they haven't any time for duties other than those of their several departments. And that is another reason why a big institution wants a department whereby continual contact may be had with the public and the employes.

On the other hand, while the various companies have been increasing in size, the public has nevertheless become more and more the owners of these corporations. The stock is not held by a few persons, as formerly, but is widely distributed, particularly among employes of corporations. Hundreds of thousands of men and women in America own millions of dollars of stock in the corporations of the country. Although, six years ago, the stockholders of the Standard Oil Co. (Indiana) were 4,500 in number, and one individual owned 30 per cent of the stock, today, 50,000 American citizens are shareholders and 15,000 are employes and partners in the business. Thus, an unjustifiable attack upon a corporation, now, not only hurts the management, but hundreds of thousands of good citizens who are stockholders. So if the Department of Public Relations, functioning properly, can prevent misunderstandings, which are responsible for these attacks, it will be rendering a valuable service to both management and stockholders.

Right to Know

The public and the stockholders have a right to know as much as possible about the business of corporations, and this new development in corporate policy has helped to carry knowledge of business to the people, to open the doors to inquiry, to lay the cards on the table, to present a set of facts and trust to the good sense and fair play of the American people to cast into an everlasting limbo all policies and slogans bearing even a remote kinship to that rather ancient phrase, "The public be damned." Standing like a beacon on the monument of our industrial progress is the new slogan of progressive and thoughtful business, "The public be served."

I said a while ago that the public at large is interested in the operation and management of corporations, and as a matter of fact, are entitled to know how they function. Many lines of business were slow to realize the importance of public good will. Years ago, when I was in active newspaper work, especially with the Associated Press, the railroads were the worst offenders. I had various experiences with them, and a number of times when we were advised that a wreck had occurred some where out on the line, we would call up the general office in Chicago to make inquiries about it. It was often impossible to get any kind of information regarding the wreck. Even after the wrecking crew had been ordered out, officials of the road would tell us they knew nothing about it. I never could understand the theory of such a practice. The wreck could not be suppressed by the railroad, the facts and truth would eventually come out, and the railroad could have established friendly relations with the newspapers, if, instead of refusing information and denying the

(Continued on Page 122)

POLICY JUSTIFIED BY RESULTS

Probably no single concern in any industry has given more attention the past few years to public relations than the Standard Oil Co. of Indiana. The confidence shown in this company by millions of consumers in the Middle West where it is the largest single refiner and marketer of refined products attests to the success of the policy of consideration for the public in all its activities.

George M. Cook

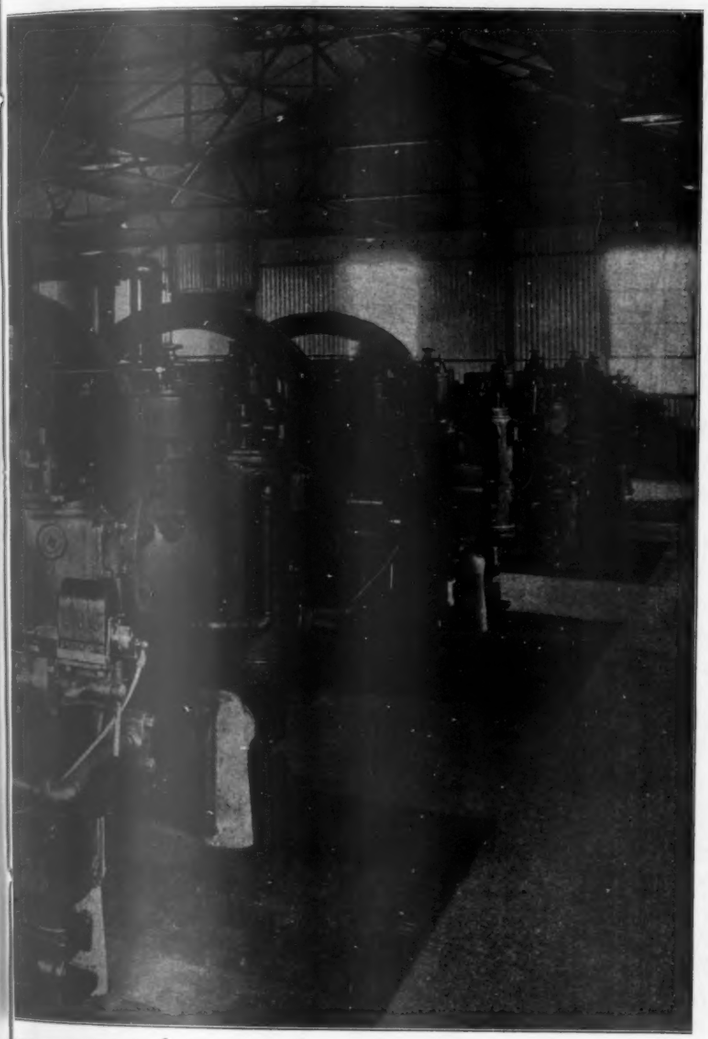
George M. Cook was placed at the head of the department of public relations when it was created three years ago. On him has involved the major responsibility of solving all the numerous problems concerned with the public's attitude toward his company from the editorials of a country editor to explanations of some of the largest transactions in the financial world.

Mr. Cook was thoroughly trained for the service he now renders. After graduating in law from Indiana University, he decided to engage in newspaper work. He continued in this field for 20 years, 15 of which was with The Associated Press, the greatest news gathering agency of the newspaper world. He was connected with the Chicago, Indianapolis and Washington offices of The Associated Press.

During this period Mr. Cook came to realize the benefits which would accrue to individual concerns and the oil industry generally through an efficient department of public relations. The newspaper training also gave Mr. Cook a wide acquaintanceship among publishers and editors of newspapers and trade publications essential in the work in which he is now engaged.

Previous to assuming his present duties, Mr. Cook was connected with the public relations department of Swift & Co.

*Address before Medill School of Journalism, Northwestern University, Chicago, April 16, 1925.



LIKE TIME Gasoline Production Can Never Be Made Up

Profits in a natural gasoline plant depend upon continuous operation. The Roxana Petroleum Company planned to take advantage of this fact in building their plant at Stroud, Oklahoma.

They first chose Cooper Gas Engines and Compressors—equipment that time has tested and gasoline men have found will stand the gaff on a continuous load. They then placed good men in charge of it.

During the past thirty days they have lost but 4½ engine hours, or an average of only a little over one hour per engine. One of the four engines has shown 100% operation for the last three months.

The well kept appearance of this plant is indicative of the attention this company gives to every detail of their business.

MOUNT VERNON, OHIO

ANGELES, CALIFORNIA 504 KENNEDY BLDG., TULSA, OKLAHOMA

WILBARGER COUNTY, TEXAS, WHICH IS SCENE OF CONSIDERABLE ACTIVITY

—Map compiled by Heydrick Mapping Co., Wichita Falls, Texas.

There are about 100 wildcat operations in full swing in Wilbarger County, Texas. Many of these are located on the W. T. Waggoner ranch, shown in upper right hand part of the map. The section shown in the map is one of the most active in the North Texas area at this time.

PETROLEUM CONCESSION GREATER IN GUATEMALA

NEW YORK, April 18.—Perpetual Petroleum Corp., subsidiary of Consolidated Petroleum Corp., of Boston, has acquired from Nuyens y Cia. of Guatemala, the latter's hydrocarbon concession on 325,000 acres in the departments of Izabal and Alta Verapaz, Guatemala, Central America.

The concession borders on the salt lake of Izabal. Preliminary work, it is said, will begin before July 1, 1925, and the company plans to have drilling machines and rotary rigs in action before the end of the year if reports prove satisfactory.

The Guatemalan owners were represented by Colonel Felix Castellanos B., of Guatemala, and John Eoghan Kelly, of New York. Together with Carlos Nuyens of Guatemala, they will represent the interests of Nuyens y Cia. on the board of Perpetual Petroleum Corp.

TO PARALLEL GAS LINE

HOUSTON, Tex., April 18.—Magnolia Petroleum Co. is planning to parallel its natural gas pipe line from east Texas and Louisiana to Beaumont, in order to insure constant supply in case of accident to one line.

REFRACTORIES FORM RESEARCH INSTITUTE

PITTSBURGH, Pa., April 18.—Tentative plans have been made for the organization of the American Refractories Institute to provide a satisfactory contact between all the industries that use and manufacture refractories, in order to meet their various economic and technical problems with respect to heat-resisting materials. It is proposed to maintain a research laboratory to study the problems of the consumer and the manufacturer.

MacDonald C. Booze, senior incumbent of the Multiple Industrial Fellowship on Refractories, Mellon Institute of Industrial Research, Pittsburgh, has been appointed temporary secretary of the organizing committee.

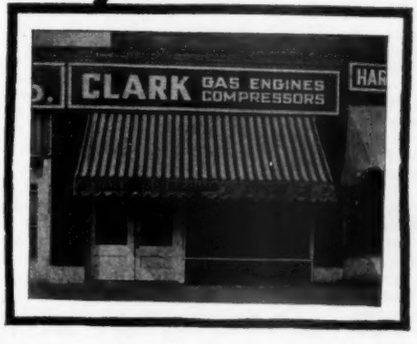
GAS TEST NEAR DENVER

President E. E. McKee, of the Green Mountain Petroleum Co., states that tools are now being assembled in Kansas, and he expects to have the well, 4 miles west of Denver, spudded in within two weeks. The derrick is already built on this location, which is in the northeast quarter of 12-4-70, midway between Denver and Golden.

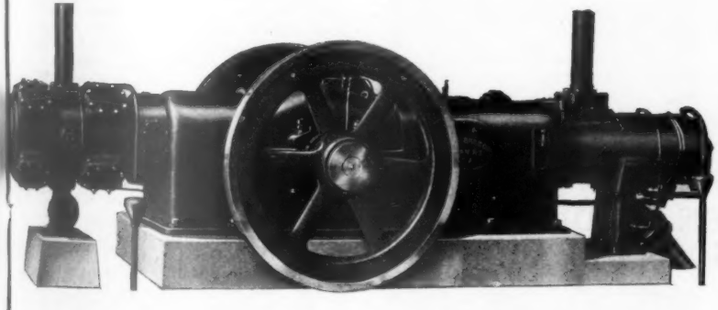
WE ARE HERE

Mr. Wm. G. (Bill) Cummings and staff will be present during the convention to extend our greeting in person.
Visit the Tulsa home of Clark Compressors and Engines at 125 W. First Street, for any personal service which we may be able to render during your stay in Tulsa.

DISTRIBUTORS
Pacific Coast
SMITH BOOTH USHER CO.
228 S. Central Ave.
Los Angeles
50 Fremont Street
San Francisco



125 W. First St.



PRESSORS

Possibilities in New Mexico and Utah

The One Is Showing a Healthy Growth as an Oil Region But the Other Offers Not Much Promise

By James McIntyre

It was thought, a few years ago that when all the great structures in the Eastern fields, the Mid-Continent and California had been developed and the oil industry was forced to seek new areas to maintain production the Rocky Mountain region would supply enough crude oil to take the place of the declining fields in other parts of the United States. Wyoming and Montana especially held out great promise, while Colorado, New Mexico and Utah were confidently expected to take a prominent part in the business of supplying the world with oil.

Thus far Wyoming has been far in advance of the other States named as an oil region. The Salt Creek Field, opened in 1911, (its first production record having been in August of that year), had produced up to the end of 1924 a total of 137,789,592 bbls., a record that placed it in the class of Glenn Pool, Cushing, Burbank and Tonkawa, in Oklahoma; Burkburnett, in Texas; Bradford, in Pennsylvania, and other big fields of high grade oil, but Salt Creek has been the only field in all the Rocky Mountains which ranked among the leaders, and there is no other field in that region which gives promise of producing anywhere near the quantity of oil that Salt Creek has done.

Very few light oil possibilities not now definitely known, are left in Wyoming. It is expected that most of the wildcats in the future will be tests of the black oil series. Salt Creek has possibilities for big production in the deep horizons known to produce oil which deep storehouses are being held back until such time as needs require their development.

Montana Report Holds

The general report on Montana made early last year in The Oil and Gas Journal still holds good so far as general results are concerned. The wildcatting program in Montana will not get under way until after May 1. There are no structures in Montana outside those now known to contain oil that hold forth certain productive results and the future of that State is no more promising now than it was a year ago when the whole State was carefully surveyed by an unprejudiced observer.

Colorado has been reviewed a number of times in the past few months in this journal. Larimer County is a real oil country and may be expected to show good results of drilling operations. There are other promising structures in the State that are now being drilled. We will have to await the results of this wildcatting campaign before passing judgment on them.

In this article special attention is paid to New Mexico and Utah. The data was made up by experienced investigators employed by one of the largest oil companies. These scouts made a general survey of the two States and reported their findings to their company and through the courtesy of the organization in question The Oil and Gas Journal is permitted to make use of such of the information as would be of interest to oil men in general. The writer is well acquainted with the ability of the men who made the report. Their only object was to learn the facts. The conclusions drawn are theirs, subject, of course, to the errors of judgment, which even the biggest men in the oil industry make in "doping out" the future of a possible oil bearing structure.

New Mexico Has a Future

The State of New Mexico is gradually coming to the front as one of the major oil producing States of the Rocky Mountain region. At present there are four separate oil fields in that State: The Seven Lakes Field in McKinley County; the Rattlesnake Pool and Hogback Pool, in San Juan County and the Artesia Field in Eddy County. The first three fields named are located in the extreme northwestern part of the State, while the Artesia Field is located in the extreme southeastern part.

The first producing oil area in the State was the Seven Lakes Field in McKinley County. Most of the production was developed in Section 18-18n-10w. The oil came from a very shallow sand and the daily production was always small. No pipe line was ever built into the field and all the oil was trucked in tank wagons and sold as fuel in the immediate vicinity.

The Hogback Pool, on Hogback Dome, Navajo reservation, San Juan County, was the next field developed. Up to this time the whole producing area is located in Section 19-29n-16w and is owned by the Midwest Refining Co. Up to the beginning of April the Midwest Refining Co. had completed 10 wells in this field of which four were water wells. The producing wells have at this time a total daily potential production of over 4,000 bbls., but are producing around 600 bbls.

There is no sign of gas in the field and all the wells are flowing by fresh water pressure. All the wells are pinched in. It is believed that if these wells were permitted to flow naturally the water would soon drown out the oil and ruin the field.

The producing area of the Hogback Field will not cover over 160 acres. The pool has been defined on the east, south and west sides by dry holes, and is not expected to extend much farther north on account of the structural conditions.

The oil tests 62 gravity, 80 per cent of which is gasoline, and is coming from the Dakota sand at depths varying from 625 feet to 1,000 feet. The thickness of the sand varies from 2 feet to 10 feet. A pipe line was laid from the field to Farmington, N. M., about 23 miles distant. The daily production is run through this line and shipped in tank cars from Farmington to the Utah Oil & Refining Co.'s plant in Salt Lake City, Utah.

The Rattlesnake Pool on the Rattlesnake structure, Navajo reservation, San Juan County, followed the Hogback Pool in chronological order. All the production in this field will be limited to Sections 1 and 2 in Township 29n-19w. The Munoz interests, which control the whole structure, opened this field in March, 1924. The Mutual Oil Co. purchased a one-half interest in the field the first part of November, 1924, and January 1 assumed the responsibility of developing the acreage. Nine wells had been completed up to first of the present month of which eight were producers. No. 2, the farthest drilling operation on the east side of the structure found so much salt water in the bottom of the Dakota sand that it had to be abandoned. Number 7 was the largest initial producer in the field starting at 835 bbls. a day.

Crude of 64 Gravity

This field produces the highest gravity crude in the United States. The oil testing 64 gravity and containing over 80 per cent gasoline. Mutual Oil Co. officials estimated early this year that the field would cover 1,000 acres but the investigator responsible for these field observations was inclined to place the productive area at not over 640 acres. While the potential production of the field was about 1,200 bbls. when the field was visited. The wells were pinched down about 250 bbls. a day. The oil comes from the Dakota sand at depths varying from 700 to 850 feet. The thickness of the sand is never over 10 feet and almost pinches out in wells drilled on the edge. A 3-inch pipe line was laid from the Rattlesnake Pool to the Hogback Pool, a distance of 12 miles, and the oil pumped through the Midwest line to Farmington. The Mutual Oil Co. will distribute the oil from its 250-bbl. skimming plant in Farmington, marketing it in southwestern Colorado and northwestern New Mexico. The plant was built this year.

The Artesia Field in Eddy County is the most promising field in New Mexico. The center of the thus far productive area is located about 18 miles north of Carlsbad, and in Section 28, 29 and 32, in Townships 18s-28e. Up to this time the producing wells have varied in initial production from less than 25 bbls. to 300 bbls. The oil is found in a sandy lime formation at a depth of about 2,000 feet, but there is a sand about 435 feet in depth that has shown small production. Ideal drilling conditions prevail in that field and no water troubles are encountered while only two strings of casing are needed to complete the wells. The oil is of a greenish color and tests 38 gravity. The Artesia Field is moving out.

The producing companies in the field which was opened by the Illinois-Producing & Refining Co., are the company just named and the Twin Lakes Oil Co., Pitcher Oil & Gas Co., New State Oil Co., Burgess & Goodale, Royal Duke Oil Co., Danciger Oil & Refining Co., Maljammer Oil & Gas Co., Gilliland Oil Co. of New Mexico., Rotary Illinois Oil Co.

The New States Oil Co.'s well located in the southwest corner of Section 4-18s-28e, 3½ miles north of the main field, missed the oil sand found in the main field but found a producing sand at 2,297 feet. Geologists agree that this is a different sand from that 300 feet higher in the main pool. The Burgess & Goodale No. 1, southwest quarter of Section 30-18s-29e, about 4 miles east of the main field, found an oil sand at 500 feet shallower than the producing wells in the main field, but with a small production.

Will Cover Large Area

The Artesia Field is expected to cover a very large area. While now and then a comparatively large initial producer may be expected in the field, most of the completions are expected to be small and the wells to decline rapidly in output. The logs of all the wells in the field are easily correlated and show a uniform dip of 70 feet to the mile to the east. The field should not be spotted.

Practically all the large oil companies operating in the Rocky Mountain region have representation in the Artesia Field. The Ohio Oil Co. recently purchased five whole sections 3 miles east of production and lying in a strip running north and south for $20 an acre. The Standard Oil Co. of California, Midwest Refining Co., Gypsy Oil Co. and T. S. Hogan have large blocks of acreage south of the main field extending as far south as the city of Carlsbad. Two pipe lines are in operation from the field. The Rio Grande Refining Co. at El Paso made an agreement to buy up to 4,000 bbls. a day at Mid-Continent crude prices and the Gilliland Oil Co. of New Mexico takes oil for its small plant at Roswell. When

(Continued on Page 128)

HE COULD HAVE BEEN AN IDLER BUT FINDS JOY IN HARD WORK

By James McIntyre

That a young man is handicapped by the possession of wealth—that the same young man would make more progress if he started with nothing but his talent, energy and ambition, may be true as a rule, but there are many notable exceptions. One of the exceptions may be found in the Smackover Field in southern Arkansas, where a lad of 19, with a fortune of his own right and a father who is one of the most prominent men in the financial world, is working every day in the field as a combination roustabout and field scout for the purpose of learning the oil business from the practical oil man's side.

S. L. Cromwell, Jr., son of S. L. Cromwell, president of the New York Stock Exchange, is the young man referred to. He has been called "Bob" from childhood and "Bob" he is to every man in the Smackover Field, for they all know him and like him.

"Bob" Cromwell would be hard to miss, as he stands 6 feet 6 inches in height, one of the tallest men in the Smackover area, and as his work takes him into every part of the field he is well acquainted with every contractor, driller and roughneck in the district.

"Bob" Cromwell's father is interested in the oil business. He is a stockholder in the North Central Texas Oil Co., for which company his young son is working as hard as any day laborer in the company's employ. The son desires to learn how to buy leases, drill wells, produce oil and purchase royalties and decided that the best way to do so was to take an active part in the work. He lives in a small house in the pine woods several miles from the city of El Dorado, boarding with a field employee, and is up early in the morning, and in the overalls and heavy brogans of the field worker does as much work each day as any man in the company's employ—and likes every minute of it.

He is keen to learn and is an intelligent questioner. What he learns he stores away in the recesses of a keen brain mature beyond his years. Some day he will make use of it on his own account. He asks and receives no favors and his wages are those that would be paid to any outsider the company might hire. Young Cromwell lives on his pay. That is a part of his self-imposed hard schooling. He figured that if he could not go out and do the work other young fellows do and eat what they ate and sleep as they slept and indulge himself no more than they, his oil education would be incomplete. So he has swallowed the whole hard field life, hook, line and sinker, and his several months' experience has not dulled the keenness of his taste for it.

"Bob" Cromwell will be heard from in the oil business. By the time he reaches the age when other young men leave college he will, if he remains in the business, have learned all he need know of the practical side of the industry. He has the right stuff in him—the material that makes real men. He has a cheery nature, mixes well with men, and finds his chief enjoyment in useful work.

His father should be proud of such a son, and doubtless he is.

Greater Progress in Natural Gasoline

George A. Burrell Shows the Sequence of Important Developments and Predicts Even More Striking Advancements Just Ahead

By George A. Burrell

The motor fuel consuming public is today just as dependent upon the natural gasoline art as it is upon the cracking or so-called straight refining art. An approximate estimate is that natural gasoline furnishes 8 per cent of the motor fuel consumed, cracking 28 per cent and straight refining 64 per cent. But natural gasoline is more useful than these figures indicate, because it makes available for motor car use a very large proportion of cracked and straight run gasoline by supplying the more volatile portions for these gasolines. In other words it is the "initial" of motor fuel.

Practically all motor fuel contains natural gasoline. There is no such thing as straight run gasoline any more in appreciable quantities, nor can the writer see why there should be. The two gasolines come from the same source, the crude oil of the sand. One is simply distilled "off" in the ground and the other in a refinery still. Both are oil distillation processes.

It so happens, however, that casinghead gasoline has not yet quite survived the odium attached to it in former years. For this the natural gasoline operator is in part to blame. There was a good return in former years in mixing casinghead gasoline with kerosene, thereby making a respectable looking motor fuel and a considerable profit. Some of the larger companies were shortsighted enough in the past to campaign against casinghead gasoline. Further, the best method of handling the wilder portions was unknown. Accidents were common and large losses ensued in using the material. It is probable that motor fuel contains an average of 2 to 15 per cent natural gasoline. Blends may contain as high as 45 per cent in the winter time.

Not much 131-degree Fahrenheit initial boiling point motor gasoline reaches the eastern market at present. All winter long it has been 100 to 120-degree Fahrenheit initial boiling point, to the comfort and satisfaction of the motorist. This is due to natural gasoline.

Recent Developments

An industry can accomplish a great dea lin 20 years, given the proper financial incentive, and so the natural gasoline industry in that time has advanced from the small single stage compression plants built by Mayburg, Sutton Brothers, Fasenmyer, Thompson and others in the eastern fields, making a few score gallons of gasoline per day, to the large combination plants of the Mid-Continent, Wyoming and California fields. A 20,000 gallon per day plant in those fields is not uncommon, and at least two companies themselves produce over 200,000 gallons of natural gasoline per day. The Phillips Petroleum Co., of Oklahoma, is the largest manufacturer of it.

There are today three fundamentally different processes. The compression, "absorption in oil," and "absorption in activated charcoal" processes. In some plants all three processes are combined. As adjunct of these processes there have been added many improvements to more economically produce the gasoline. The writer would place the various major developments in approximately the following order:

(1902) Single Stage Compression (casinghead gas).
(1905) Double Stage Compression (casinghead gas).
(1906-11) Oil Absorption Process (high pressure dry gas).
(1911-12) Oil Absorption Process (casinghead gas).
(1919) Charcoal Process.
(1922) Fractionating Columns.

Of importance also the following improvements are a part of the history of the industry.

Blending.
Steam distillation at oil plants.
Fire distillation at oil plants.
Horizontal absorbers.
Vertical absorbers.
Expansion engines.
Brine refrigeration of the oil stream.
Absorption in crude oil.
Partial vacuum distillation of saturated oil (Hosmer still).
Home made double pipe heat exchangers.
Patent tubular exchangers.
Rock and wood grid tower fillings.
Fillings like the Foster, Jarvis and other efficient fillings.
Patented absorbers like the Newton absorber.

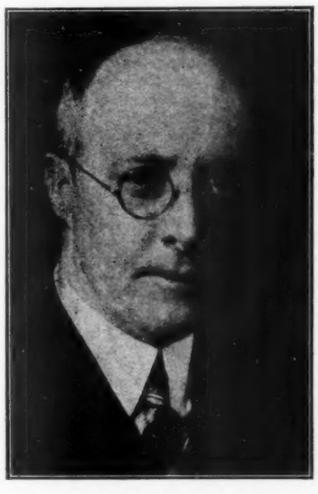
Testing Methods

The devolopment of testing methods probably took the following order.

Specific gravity method.
Field compression method.
Field oil absorption method.
Charcoal method.

The last is the most exact and convenient.

An uncertain test continues to be the



George A. Burrell

vapor pressure test. A vapor pressure determination in the laboratory can be made the most exact of experiments, but to put a practical vapor pressure apparatus in the hands of plant men, that will handle a quart of liquid and expect them to get concordant results, neglecting refinements that are a necessary part of precise vapor pressure work, is asking too much. The apparatus is vented at 70 degrees Fahrenheit, allowing the "high pressure" constituents to escape. Further, it is difficult for two independent testers to check results.

It is the author's opinion that the exact work required of such a test be recognized and a much more refined apparatus be adopted. Natural gasoline is sold on vapor pressure tests, i. e., transportation rules demand that nothing over 10 pounds be shipped in ordinary tank cars. If a gasoline be called a 10-pound product when it really is an 8-pound product, it means that the shipper is losing about 10 to 15 per cent of his product.

Transportation

An explosion in 1911 in St. Louis forced the Bureau for the Safe Transportation of Explosives to recognize a new product, casinghead gasoline. There have finally developed present tank car rules. But tank cars still leave much to be desired. Men continue to unscrew dome covers with pressure on the cars; they do not relieve the pressure valve before unloading; bottom valves leak and freeze; dome covers leak, and the liquid superheats and boils over even when no pressure of consequence is on the car. Vent holes in the dome covers were thought to be a fool-proof device but the Bureau for the Safe Transportation of Explosives has listed at least 20 explosions through opening dome covers since these vent holes were put in the covers in 1916. However, they are bound to help considerably. One doesn't know how many explosions would otherwise have occurred.

Transportation developments have occurred about as follows:

1904-1911. No adequate rules.
1911. Formation of Safety Rules (Col. B. W. Dunn).
1913. Introduction of first insulated car by General American Tank Car Corp.
1915. Vent holes in screw dome covers.
Bolted covers.
1921. Covers such as the Holmes Gas-Tite cover for unloading a car without opening the cover.

Utilization of Natural Gas

Natural gas has been utilized in about the following order for gasoline extraction purposes.

(1) 1904 Casinghead gas.
(2) 1913 Dry natural gas.
(3) The use of flush gas, a development of the past five years.

Hand in hand with conservation has gone the utilization of residue gas, the production of more oil due to the vacuum placed on the wells and culminating in recent years in the laying of expensive gathering systems such as that belonging to the Lone Star Gas Co. in Texas to collect residue gas from large absorption plants in Texas. This system, just recently completed, can collect a maximum of 50,000,000 feet of gas per day and deliver it to Dallas, Fort Worth and other towns in Texas, a notable contribution of the natural gasoline industry to the welfare of a large population.

Conservation of "Light Ends"

The conservation of the "light ends" of gasoline has taken place in about the following order.

(1) "Steam or compressed air weathering" in tanks open to the atmosphere.
(2) Development of better weathering methods with crude towers.
(3) Blending to save more of the volatile portions.
(4) The introduction of the oil absorption system where the gasoline was better fractionated in the process.
(5) Introduction of the charcoal process whereby the gasoline was still better fractionated in the process.
(6) The introduction of fractionating columns of which the Thompson-Rafferty is an example, whereby gasoline after it is made, is fractionated by the application of low temperatures in a tower.

Comparison of Processes

The oil absorption process is the only universal process. It will handle rich or lean gas. The compression process handles rich gas and the charcoal process gas of less than 2 g. p. m.

The oil absorption process is superseding the compression process for oil well gas. Much of this gas comes in "lean," so that in the initial stages the compression process could not be employed. The oil process fractionates the gasoline better than the compression process. Low pressure (of the order of 30 pounds) is employed with attendent advantages. An increase in yield (say 10 per cent) of gasoline production follows the use of the oil process over the compression process. Air in the system does not constitute as troublesome a factor. The product is better, and installation and maintenance costs probably are a trifle lower.

The charcoal process is the best for lean gas. The yield is greater, the product better and pressure of the gas does not affect the absorption. Pressures as low as 5 pounds may be as efficiently employed as high pressure. In fact the former is to be preferred.

Combination Plants

Every plant working at its best efficiency should be a combination plant. Thus we find compression plants with oil, naphtha or charcoal absorption systems, oil and charcoal plants with compressors handling the tail vapors, and oil plants equipped with complete charcoal plants.

Compressors will precipitate gasoline until the pressure of the condensate equals the pressure of the compressor. Then equilibrium is established. No more condensate precipitates. One can assume that a certain natural gas contains among other constituents, 2 gallons of hexane per 1,000 feet of gas. Each constituent exerts its own pressure mixture is the sum of all the individual pressures exerted by all the constituents, according to Dalton's law. The pressure of pure hexane at say 60 degrees Fahrenheit is 2 pounds, absolute per square inch. This is the pressure at 60 degrees Fahrenheit, that would have to be applied to pure hexane to start it condensing. But the hexane is only present in the natural gas to the extent of 2 gallons per 1,000 feet. Two gallons of liquid hexane is equal to about 50 feet of vapor. This is 5 per cent of the total. Hence the pressure necessary to start the hexane condensing is not 2 pounds, but $2 \times \frac{100}{5} = 40$ pounds absolute or 25 pounds gauge. Hence at least this pressure must be applied.

In compression plant practice a pressure of 250 pounds is not unusual. This is more than enough to start the hexane condensing. Upon application of this pressure the hexane begins condensing until a state of equilibrium is set up whereby just as much hexane leaves the gas as enters it from the condensed liquid. In the particular case under discussion this occurs when the hexane content of the gas becomes about 8 feet of vapor. Thus $\frac{1{,}000 \div (250+15)}{2} = 7.55$. This equals .302 gallons of liquid hexane. Hence under no circumstances, under the conditions cited, could the hexane content of the residue gas fall below .302 g. p. m.

Oil will absorb gasoline until the pressure of the absorbed constituents equals the pressure of the gasoline left in the gas. Again equilibrium is established. We find gasoline to the extent of .20 to .50 gallons per 1,000 feet in residue gas from compression plants and from 30 to 100 gallons per 1,000,000 in residue gas from oil plants. The efficiency of the plant has much to do with the extraction efficiency, such as the temperature of the cooling water, efficiency of the scrubbers, temperatures of the oil, expertness of the operators, general condition of the equipment, etc., but there are certain fundamental laws which fix the extraction efficiency regardless of the mechanical condition of the plant or choice of a process.

This is also true of charcoal plants.

(Continued on Page 180)

For Plants Requiring Special Chemical Processes

Where special equipment is demanded, especially in the chemical or oil refining field, our engineering staff must meet conditions peculiar to this field unfailingly. The result is a special study with a special solution that helps to provide the proper equipment. Call on us, as so many of the leaders in the industry have done, and we will gladly discuss the matter without obligation.

Power Piping Co.
833 Beaver Ave., N. S.
PITTSBURGH, PA.

COMPLETE FABRICATION and ERECTION

VALVES FLANGES FITTINGS

Power Piping

FOR EVERY OIL FIELD NEED

PURPOSE OF ETHYL GASOLINE CORP. BEING EXPLAINED IN ADVERTISING

By L. M. Fanning

The Ethyl Gasoline Corp., jointly owned by the General Motors Corp. and the Standard Oil Co. (New Jersey), has inaugurated a national advertising campaign of educational character designed to tell the public the aims of the companies concerned in relation to the development of ethyl gasoline as an anti-knock fuel.

Total sales of ethyl gasoline since being put on the market have been around 300,000,000 gallons. It is stated that the purpose of the present advertising is not to increase sales, the present production being oversold, but to explain the purpose behind the corporation.

The relation of the compound to conservation of petroleum is stressed. The original advertisement of the present series is headed: "Why General Motors Corp. and Standard Oil Co. (New Jersey) have joined in organizing the Ethyl Gasoline Corp to promote the use of a more efficient motor fuel." It is recognized by all authorities, states the ad, that the petroleum resources of the United States are limited, and that to prevent their exhaustion it is essential that the nation should begin at once to use gasoline more efficently.

Independent Researches

It is pointed out that for years the laboratories of General Motors and Standard Oil Co. (New Jersey) have conducted independent researches to discover a treatment of gasoline that would remove the causes of knocking in gasoline engines, and that the result of uniting their efforts is the ethyl brand of anti-knock material which several of the leading oil companies are now adding to their motor fuel and retailing under the name of ethyl gasoline. Production is still far behind the demand, and it is stated months must pass before ethyl gasoline will be available to all motorists.

The principal interest of the General Motors and Standard Oil Co. (New Jersey) is in the developments which will follow its general distribution, it is stated, developments which will contribute immensely to the conservation of petroleum.

It is admitted by officers of the Ethyl Gasoline Corp. that the newspaper publicity resulting from the accidental poisoning of some men employed in a semi-works production plant manufacturing tetraethyl lead last fall, made an opening for an attack upon the general proposition of using tetraethyl lead in gasoline. However, they state that the present advertising is not designed to combat this condition, which they believe has been largely corrected, but, rather, to show the importance of the ethyl gasoline from the standpoint of conservation and what the interested companies have done, and hope to do in the future development of the compound.

Has Wide Distribution

Following the accident last fall several exhaustive investigations were made, and some are still being made, into the use of ethyl gasoline from the standpoint of public safety. The only place where the sale of ethyl gasoline is now prohibited is in New York City, where the health department acted against it immediately following the accident. It is understood that this action was taken pending investigation and that the city authorities are still conducting their investigation. No effort has ever been made to sell ethyl gasoline in New York City.

At the present time ethyl gasoline is being sold by the Standard Oil Co. of Indiana, Gulf Refining Co., Standard Oil Co. (New Jersey), Standard Oil Co. of Louisiana, Standard Oil Co. of Kentucky, Standard Oil Co. of Nebraska, and others. It is being distributed in Illinois, Indiana, Iowa, Kansas, Missouri, Michigan, Minnesota, North and South Dakota, Wisconsin, Oklahoma, Pennsylvania, Delaware, Texas, New Jersey, Maryland, District of Columbia, Virginia, West Virginia, North and South Carolina, Nebraska, Louisiana, Tennessee, Arkansas, Ohio, Kentucky, Georgia, Florida, Alabama and Mississippi.

The Bureau of Mines is continuing its investigation of ethyl gasoline. The first report of the bureau, which found no harmful effects from the fuel to the public so far as the investigation had then proceeded, was published in full in The Oil and Gas Journal. Thomas Midgley, Jr., inventor of ethyl gasoline and now connected with the Ethyl Gasoline Corp., points out that broadly the advantages to the public at large with will follow the general use of the compound are (1) conservation of petroleum due to the increased mileage obtainable by using a non-knocking gasoline in a high compression motor; (2) the reduction of carbon monoxide contamination of the atmosphere due to increased efficiency of combustion; (3) reduced first cost of automotive apparatus. So far as science knows at the present time, he states, tetraethyl lead is the only material available which can bring about these results, and the results are of such vital importance to the continued economical use by the general public of all automative equipment that unless a grave and unescapable hazard exists in the manufacture of tetraethyl lead its abandonment cannot be justified.

No Danger to Public

The actual hazard involved in the general program of treating gasoline with tetraethyl lead has been found to exist only in the manufacture and handling of the concentrated material, he says. In the manufacture the hazard relatively to other chemical industries is neither grave nor unescapable. his hazard has been recognized and has been guarded against.

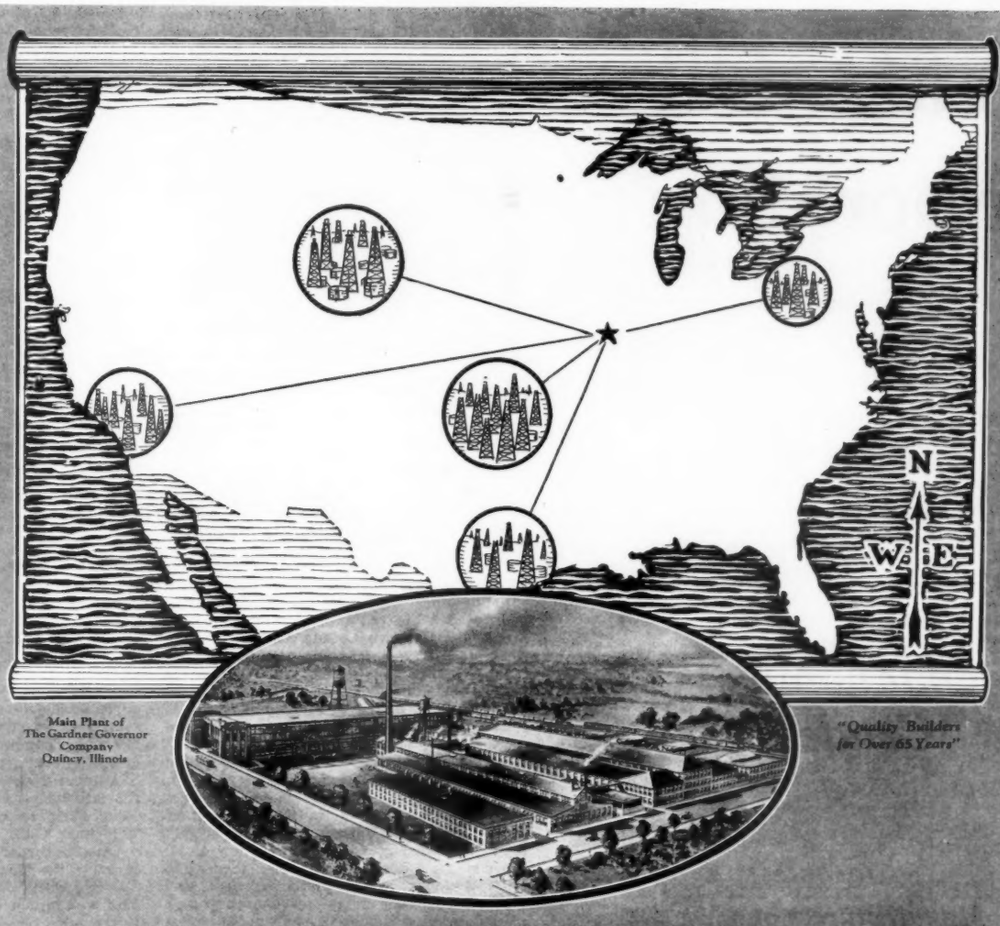
"In the handling of tetraethyl lead at the points where it is mixed with the other constituents of the concentrated ethyl fluid, and where the ethyl fluid is added to the gasoline," Mr. Midgley says, "adequate clothing protection must be used by men so employed, and the safety rules, although simple, must be rigidly enforced. Proper apparatus designed to prevent the men from coming into contact with tetraethyl lead must be used.

"After mixing tetraethyl lead with gasoline, no great precaution need be exercised, the ratio being one part tetraethyl lead to 1,300 of gasoline. From this point on, no health hazards actually exist. Animals have been subjected to gasoline treated with tetraethyl lead and such lead as was absorbed along with the gasoline has been shown to be eliminated rapidly. Animals killed shortly after prolonged and repeated exposure, and analyzed for lead, have been shown to have taken only small amounts of lead into their system. It may be well to mention that these experiments have been carried on under conditions that could not possibly be duplicated by a human being.

"After this treated gasoline has been introduced in the tank of an automobile, there exists no health hazards, although many imaginary ones have been suggested. The vapors arising from the gasoline itself have been suggested as a source of possible danger. These have been studied carefully, but it has so far been impossible to cause any damage to the health of animals by excessive treatment with such vapors. In fact, it has been impossible to detect any difference in this regard between the treated gasoline and ordinary gasoline, while benzol, used instead of gasoline under the same conditions, produces death in a very short period of time. It has been suggested that the amount of tetraethyl lead vapor being emitted by a gasoline motor which is being cranked but which is not firing constitutes a health hazard.

"Since the amount of gasoline vapor contained in such a mixture is so great as to be irrespirable, the experiments were carried on with the concentration alone of tetraethyl lead vapor occurring in such

(Continued on Page 104)



Main Plant of
The Gardner Governor
Company
Quincy, Illinois

"Quality Builders for Over 65 Years"

CENTRAL LOCATION

Means Low Shipping Costs—Prompt Service

The location of The Gardner Governor Company in the Central West is particularly advantageous for serving the oil fields of Oklahoma, Wyoming, Texas, Kansas, Louisiana, Arkansas and California.

Our favorable location means that more of your dollar goes for "pump" and less for freight. It also means prompter service on parts and special orders.

GARDNER offers a complete line of slush, boiler feed, water supply and oil line pumps, steam and power driven, and a complete line of compressors. Our new enclosed flood-lubricated power pumps are attracting world-wide interest. Have you seen our new bulletin describing this line—EP-1?

Territory Still Available to Agents

THE GARDNER GOVERNOR COMPANY

Quincy, Illinois

CHICAGO	NEW YORK	PHILADELPHIA	HOUSTON	SAN FRANCISCO	LOS ANGELES
549 W. Washington Blvd.	534 Singer Bldg.	604 Arch Street	718 Heights Blvd.	400 Fourth Street	419 E. Third St.

OIL INDUSTRY DISTRIBUTORS

The Continental Supply Co.—Stores in All Fields.
Norvell-Wilder Hardware Co., Houston, Beaumont and Shreveport.
F. W. Heitman Co., Houston.
Alamo Iron Works, San Antonio
Pelican Well Tool and Supply Co., Shreveport.
Haywood Williamson Co., Shreveport.
Republic Supply Co., Los Angeles.
Kirk W. Eickelberger, Rialto Building, San Francisco.
Perkins, Macintosh Petroleum Tool and Boring Co., Ltd., 25 Bishopsgate E. C. 2, London, England

If Your Supply Company Can't Supply You, Write Us Direct

GARDNER

Wentz Oil Corporation

Producers of

Oklahoma Crude

Manufacturers of

High Grade Natural Gasoline

Ponca City, Okla.

CENTRAL WEST

(Continued from Page 51)

same township, the Boston-Southwestern Oil & Gas Co.'s test in the southeast quarter Section 17, and about two miles north of Wapakonetta, is credited with 40 bbls. flush the first 24 hours. Same company's No. 2 well, 150 feet from the north line and 1,220 from the west line of the Fred Presser farm, in the northwest quarter Section 20, and not far from the Frech farm well, showed 45 bbls. This is a now company in the field and is operating in the Lawrence-Johnson County Field of Eastern Kentucky. These three wells are to the south and also to the east of the old field and upon territory that a number of years ago was considered off the line and adds a vast amount of good looking territory.

A year or so ago some new territory was developed a couple of miles west from Wapakonetta, in the southeast corner of Moulton township, Auglaize County, in the Julian section, which was virgin territory and overlooked in the early days. It now looks as though Wapakonetta, which was an offside town to the oil field, may be surrounded by producing wells. In Douchouquet Township, same county, the Boston-Northwestern Oil & Gas Co.'s No. 1 well, 200 feet from the north line and 1,120 from the east line of the George Metzger farm, in the northeast quarter Section 20, pumpsd 3 bbls.

In Moulton Township, Auglaize County, Kelley Bros.' test on the northeast corner of the Morris heirs farm, in the northwest quarter of Section 36, two miles southwest of Wapakonetta, proved a duster.

Hancock County Wildcat

One of the interesting of the late completions in the Trenton Rock Field is located nine miles east and two miles south of Findley and one and one-half miles north and two miles east of the town of Vanlue, drilled by R. Allen and others, 1,000 feet from the north line and 200 from the west line of the J. I. and H. Saltman farm, mapped as the H. F. Graves farm, in the east half of the southeast quarter of Section 35, Biglick Township, with a production of 20 bbls. from the Trenton Rock formation. This looks like a promising area and has had very little development work heretofore, and may lead up to something worth while in the future.

In Union Township, Hancock County, southwest of Findley, N. A. Jones drilled No. 11 well, 600 feet from the north and west lines of the C. O. Wyers farm, in the southeast quarter of Section 23, the well pumping 3 bbls.

In Eagle Township, same county and southwest of Findlay and between there and Lima, S. Porter and others' No. 2 well, 600 feet from the north line and 200 feet from the east line of the J. W. McClelland farm, in the northeast quarter Section 7, pumped 35 bbls., and J. M. Steen and others' No. 27 well, 500 feet from the north line and 1,000 feet from the west line of the E. M. Crozier farm, in the northwest quarter Section 7, pumped 12 bbls. Star & Clark's second well, 600 feet from the south and west lines of the Alice Stauffer farm, in the northwest quarter Section 6, pumped 40 bbls. flush.

Other Lima Field Wells

In Perrysburg Township, Wood County, W. F. Johnson's No. 7 well, 580 feet from the south line and 200 feet from the east line of the D. Lahey farm, in the southwest quarter of Section 34, pumped 5 bbls. from a total depth of 1,239 feet. Top of sand found at 1,217 feet and drilled 22 feet in.

In Liberty Township, Wood County, the Ohio Oil Co.'s No. 17 well, 500 feet from the south line and 200 feet from the west line of the S. M. Cook farm, in the northeast quarter of Section 36, pumped 7 bbls. from a total depth of 1,509 feet. In the same township, Mercer & Ray's No. 17 well, in the southeast corner of the Mary Wallace, in the northeast quarter of Section 24, pumped 15 bbls. at 1,460 feet.

In Jackson Township, Sandusky County, the North Lima Oil Co.'s No. 11, located 660 feet from the north and east lines of the Edwin Hummell No. 2 farm, in the southwest quarter Section 17, after given a shot pumped 15 bbls. Top sand found at 1,267 feet and drilled 50 feet in.

In Center Township, Mercer County, J. W. McIntosh's No. 4 well, 600 feet from the north line and 350 feet from the west line of the Oliver Graffis farm, in the southeast quarter Section 24, pumped 5 bbls. In Hopewell Township, E. A. Kuhns and others' fourth well, 770 feet from the north line and 550 feet from the south line of the C. C. Ricketts farm, Section 1, pumped 5 bbls.

In the Tiffin Field, in Clinton Township, Seneca County, Arthur Geyer and others' test in the southwest corner of the Katherine Hakers farm, in the northwest quarter of Section 30, struck top of Trenton at 1,617 feet and drilled 295 feet in the sand to a total depth of 1,912 feet and was a duster.

In the Elmore Field, in Harris Township, Ottawa County, the development work done there the past couple of years has added a vast amount of territory to the field, and while there is no great activity displayed in the field, prospects are for a steady run of at least three or four strings of tools now that the weather has improved so material can be moved. The wells are not large, but being quite a distance in advance of the old producing areas, they maintain their production much better. No big wells have been found since the Zorn-Hornung Oil Co.'s 1,050 bbl. gusher was drilled last year, but operators there expect and are looking for others of the same kind. Gust Magisn & Sons' No. 4 well, in the northwest corner of the W. E. Stewart farm, in the northeast quarter of Section 22, pumped 11 bbls. from a depth of 1,300 feet. O. Lewis Lucky's No. 5 on the southeast corner of his own farm along the north side of the Portage River, opposite the town of Elmore, and in the southwest quarter of Section 18, Harris township, pumped 9 bbls. from a depth of 1,340 feet.

Another good well has been added to the latest new extension of the Trenton Rock Field to the south, which is the Bolheimer Oil Co.'s second test on the northeast cornor of the A. Bolheimer farm, in the northeast quarter of section 22, Cynthian Township, Shelby County. The well produced 30 bbls. the first 24 hours.

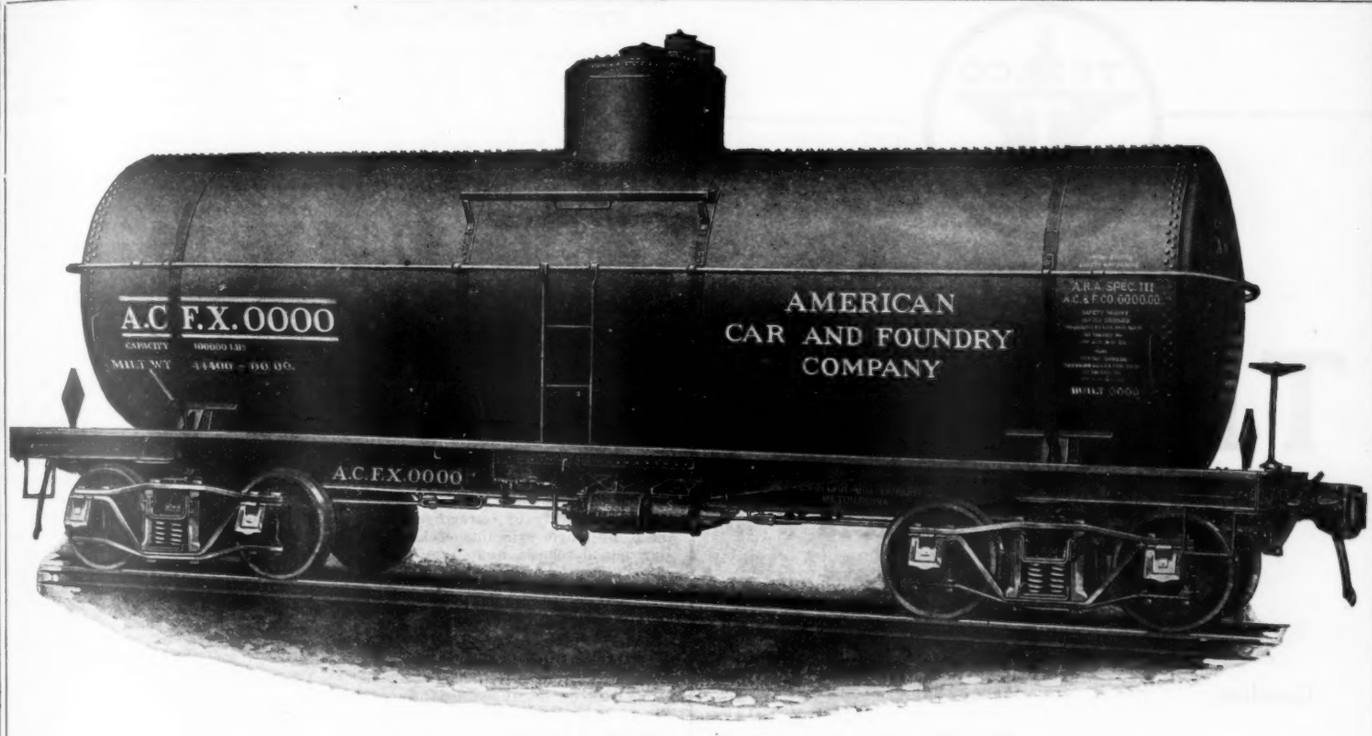
In McDonel Township, Hardin County, Schmidt and others' No. 2, in the northeast corner of the Earl Hites farm, is a gas well with a 300-pound rock pressure. This county is in line for an active development, not alone for gas but for oil as well and some very nice producers with flush of 100 bbls. have been found in the county, and it is considered among operators to be the best staying production found in the Trenton Rock outside of the Tiffin Field. This development is in what is known as the Foraker district.

The John T. Schunk No. 2 well, 700 feet from the north line and 150 feet from the east line of the C. C. Springer farm, in Section 34, Harrison Township, Paulding County, and in the Payne Field, has not been connected to the Buckeye Pipe Line Co.'s gathering line in the field, and is reported doing 35 bbls. at a total depth of 1,457 feet. The oil is being stored in tankage awaiting a connection.

Indiana Field failed to report a completion the past several days and the Illinois Field only reports two, both States being very quiet at this time, but an improvement is expected soon.

In Casey Township, Clark County, the Gillette Oil Corp.'s No. 4 well, 200 feet from the south line and 660 feet from the east line of the W. L. Slater farm, in the southeast quarter of Section 25, pumped 20 bbls. from the stray sand at at total depth of 1,428 feet.

In Robinson Township, Crawford county, Burns and others' No. 4 well, 500 feet from the north line and 375 feet from the east line of the N. C. Boyd farm, in the southwest quarter of Section 24, developed into a dry hole at a depth of 986 feet.



More Gasoline MUST Be Moved

Be Prepared!

Gasoline shipments this year have been late in starting. Meanwhile the number of automobiles in use is constantly growing, more and more trucks and passenger buses are being put into service, and many other factors, such as reduction of taxi fares, all point to unprecedented consumption of gasoline in the months to come.

Sooner or later there will be a heavy demand for tank cars. That many shippers anticipate such a demand is indicated by substantial orders for "Car Foundry" cars already booked.

We can still make prompt deliveries of both Class III and Class IV cars, because we too have prepared for the future by increasing plant facilities, but we urge all customers to place their orders without delay.

Tank car prices now are considerably under the market for materials.

American Car and Foundry Company

New York
165 Broadway

Chicago
Railway Exchange Building

St. Louis.
915 Olive Street

TEXACO

REG. U.S. PAT. OFF.

TEXACO

Petroleum Products

HIGH GRADE UNIFORM QUALITY

Gasoline	Greases
Kerosene	Cup Greases
Fuel Oils	Gear Greases
Bunker Oils	Gear Lubricants
Diesel Fuels	Axle Greases
Signal Oils	Wire Rope Lubricants
Miners Oil	Pale Oils
Gas Oil	Red Oils
Distillates	Black Oils
Spindle Oils	Floor Oils
Motor Oils	Waxes
Engine Oils	Asphalts
Dynamo Oils	Road Oils
Machine Oils	Asphalt Cement
Cylinder Oils	Pipe Coating
Cylinder Stocks	Roofing
Car Oils	Roofing Paper
	Roofing Cement

THE TEXAS COMPANY

NEW YORK 17 Battery Place — **CHICAGO** McCormick Bldg. — **HOUSTON** The Texas Co. Bldg.

Offices in Principal Cities

Export Dept.: 17 Battery Place, New York City

ADS EXPLAIN PURPOSE ETHYL GASOLINE CORP.

(Continued from Page 100)

an exhaust. With such a concentration of tetraethyl lead, toxic effects could be noticed upon animals in 24 hours; but, by diluting this to one-half of the original concentration, it was possible to keep animals therein for upwards of six weeks without toxic effects developing. When it is remembered that the exhaust from any motor must be diluted many hundred times before it can be breathed anyway, it becomes quite apparent that this bug-a-boo is laid to rest by the foregoing data.

"The exhaust from an operating motor has received an enormous amount of attention both by ourselves and by the United States Bureau of Mines, and it has been impossible to develop any data tending to substantiate any claim whatsoever that any danger to the general health of the public at large exists in this exhaust."

Mr. Midgley states that at the present time further tests are going forward with a gasoline containing five times the normal quantity of tetraethyl lead. To date, no single symptom of lead poisoning has developed and these tests have been under way since last July.

Exhaustive tests have been carried on both in the company's own laboratories and by the Bureau of Mines to determine what hazards may exist in the improper use of ethyl gasoline, such as washing motor parts, washing human body parts, etc., with no health hazard being noted. Tests have been run to determine the settling of lead dust in a garage, without disclosing any menace therefrom, Mr. Midgley states.

FLUID DELIVERY FROM OIL AND GAS WELLS

(Continued from Page 54)

coincidence, the volume-time and energy-time formulas in hydraulic control are of the same style; thus,

$$y=px$$

and as a consequence, the curves for both relations have the same style of graph. We shall observe later that the two formulas are quite different for the finite control reservoirs. A distinction which will be shown to possess considerable importance in volumetric and capillary controls may appear to be superfluous in the discussion of the present control on account of the stated coincidence, but mathematical analysis requires consistency in methods throughout the treatment of all reservoirs, irrespective of their control.

Curve Relationship

The explanation for the relationship between the cumulative gas curve and the energy curve in the case of combination reservoirs is exceedingly simple to understand in connection with the laws of delivery for volumetric control and we shall therefore not attempt to present the matter at the present time. Let us assume, for the present, that such relationship is correct, then it must follow that gas and energy bear a physical relation to each other. So they do; in any class of combination reservoir whatever, be it of the open type or closed type (Article 206), or be it of hydraulic, volumetric or capillary control.

In the closed type reservoir, gas alone is the source of the energy utilized in expelling liquid from the container. In the open type reservoir, such gas is merely the agent for the column of liquid; it receives its energy from the liquid which compresses it and it can convert this acquired energy into actual work if allowed to do so. For both types, the product of the potential pressure of the reservoir and the accumulated volume of liquid gives a number which may be used as an index of the amount of gas which should have accumulated in the same time. This index number may be converted into cubic feet of gas at atmospheric pressure if desired by multiplying it by the proper constant, but this is not essential because we may use the index number as the basis for comparison equally as well as any number expressing cubic feet of gas. If we determine our index number for a combination well when we believe it is operating at its best with regard to the proportional quantity of gas being produced with the oil, then the indices subsequently determined will show any one of three possible conditions; thus,

(a) The total amount of gas produced is greater than that indicated by index numbers obtained from the pressure and volume of oil. We are not handling the well with the proper care. Too much gas is being allowed to escape with the oil.

(b) The total amount of gas produced is equal to that indicated by the index numbers. This shows that we are continuing to handle the well with the same efficiency as formerly.

(c) The total amount of gas is less than that indicated by the index numbers. Our standard of efficiency was formerly set at too low a point. We may now "boost" the standard and hold the well to the new basis of comparison thenceforth.

For any combination well we here possess a valuable means of determining a definite goal in our attempts to conserve the gas within the reservoir. We may know what amount of gas is being allowed to escape with harmful results. As mentioned in Article 230, these harmful results differ in their nature as between the open and closed type of reservoir.

The problem on proportional production of gas may be further elucidated by a discussion on the power-time curve.

Power-Time Curve

266. Power is related to velocity in the same manner as energy is related to volume. Power was defined in Article 33 as the rate of displacement of energy. Observations on power-time pertain to a particular point of time in the life of the reservoir. Some of the problems concerning well reservoirs are therefore more conveniently handled by considering power-time relations rather than those of energy-time, but not all problems are thus advantageously treated because the power-time relation is one which is sensitive to the manipulation of the orifice. (Article 231.) Any function which is a rate of change of another function inherently involves the function of time. (Article 11.)

By Article 246 the pressure-time relation for reservoirs of Hydraulic Control is:

$$P=K \quad \ldots\ldots\ldots (1)$$

and by Article 252 the velocity-time relation is:

$$Ve=K \quad \ldots\ldots\ldots (2)$$

From these two equations we obtain by multiplication:

$$PVe=K \quad \ldots\ldots\ldots (3)$$

And, assuming the truth of a proposition which we will establish at a later time; to-wit, that from the energy-pressure-volume relations expressed thus,

$$E=KPVo \quad \ldots\ldots (\text{Article } 263)$$

we may, by the processes of differential calculus, obtain the power-pressure-velocity relations, thus,

$$Po=KPVe \quad \ldots\ldots\ldots (4)$$

then from equations (3) and (4) we may write:

$$Po=K \quad \ldots\ldots\ldots\ldots (5)$$

which is the equation of the straight horizontal line. We have adopted the left-hand origin for curves of (1) and (2), therefore the origin for (5) is necessarily at the same position. These are the power-time relations for reservoirs of Hydraulic Control.

267. Figure 267 illustrates the ideal power-time curve for this control. The line A is at a distance Po from the X-axis, representing potential power as computed from the potential pressure and potential velocity. It is that rate of change of energy which is taking place as the fluid leaves the reservoir under the conditions determined by the back pressure.

As usual, we have the X″- and X′-axes. Po″ represents that power which would be delivered by the fluid if production were to take place against atmospheric pressure at the orifice. Po′ is that fictitious amount of power which would be delivered upon the application of the perfect vacuum at the orifice.

(Continued on Page 108)

AMDYCO ANNOUNCES

To the oil industry, the establishment of a complete fire prevention and fire protection service

THROUGH the organization of the Amdyco Corporation, the advice and special knowledge of the foremost fire prevention engineers in the country is now available to the oil industry.

Upon request, experts of the Amdyco staff assisted by your representative, will make complete recommendations on the adequate protection of your plants and properties. They will co-operate with managements in instructing and training personnel in fire prevention measures and in the use of fire prevention apparatus.

In addition to the above, a bulletin service will be inaugurated. These bulletins will take the form of reports on the most recent innovations in method and apparatus for extinguishing and preventing fire. They will also contain information for the education of personnel on precautionary measures.

In the construction of new plants, the Amdyco Corporation will recommend types of construction to give the least possible fire hazards. This will be done in co-operation with your engineering staff and insurance representatives.

We believe that in offering service of this scope to the oil industry, the Amdyco Corporation is filling a long felt need. We shall be glad to render any help and assistance in our power. A line addressed to our offices will receive prompt attention.

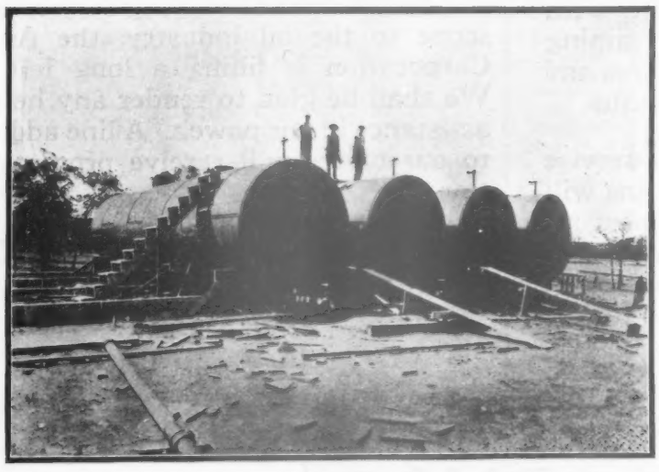
THE AMDYCO CORPORATION
100 East 42nd Street
New York City

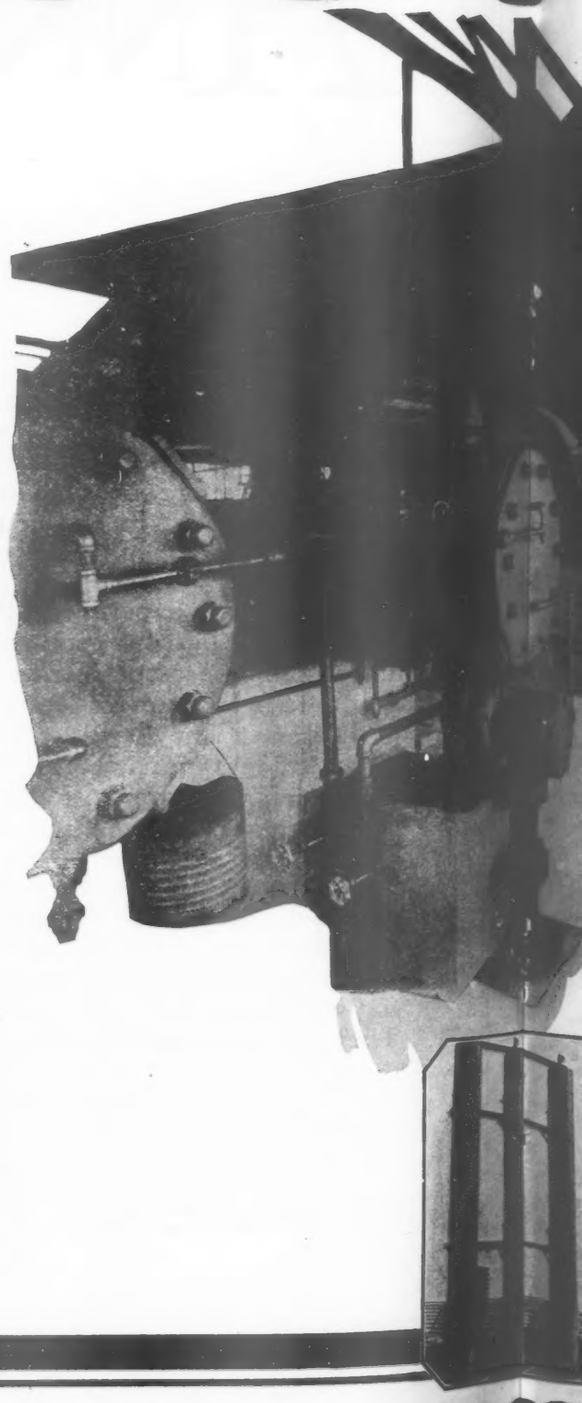
The brand of the most effective foam stabilizer produced.

AMDYCO

The mark of the most complete fire prevention service available.

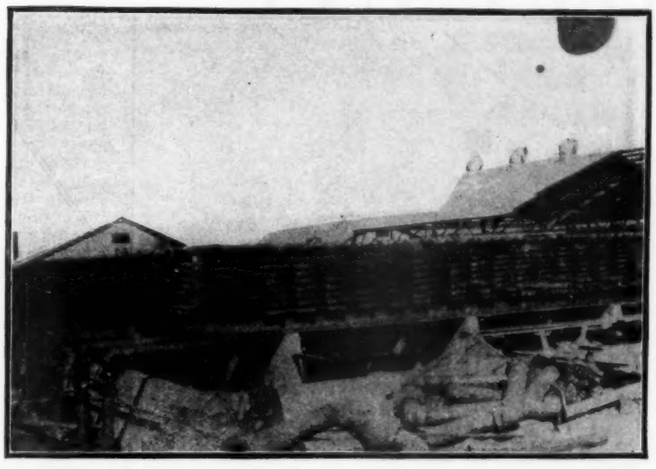
GASOLINE E
EQUIP





THE NATIONAL SU

EXTRACTION
P M E N T



UPPLY COMPANIES

PHILLIPS PETROLEUM COMPANY

General Office

BARTLESVILLE, OKLA.

Absorption Gasoline

Grade A Double A

Grade B Double B

Grade C

26 plants located throughout Oklahoma, Louisiana and Texas

FLUID DELIVERY FROM OIL AND GAS WELLS

(Continued from Page 104)

268. As in the case of energy (Article 265), we may discriminate between wells which produce liquid only or gas only, and those which produce the two fluids combined. For the single fluid wells the rate of production is in accordance with the velocity-time curve of Figure 252, but for the combination wells we have:

(a) The rate of production for the liquids in accordance with the velocity-time curve.

(b) The rate of production for the gas is in accordance with the power-time curve.

The consideration of two velocity-time curves for combination wells was suggested in Article 255.

Again, the distinction between the velocities of the two fluids applies to combination wells of all three controls. By purely mathematical coincidence, the velocity-time and power-time formulas in Hydraulic Control are of the same style; thus,

$$y=p$$

and as a consequence, the curves for both relations have the same style of graph. We shall observe later that the two formulas are quite different for the finite control reservoirs. There is a physical relationship between gas velocity and power in combination wells of all classes.

Index numbers for power may be obtained by multiplying the potential pressure of the reservoir by the potential velocity for the liquid, and such numbers may be used in the manner corresponding to the method outlined in Article 265. It is not necessary to convert these numbers into other units by multiplying them by the proper constant. As with energy, we may leave them in their abstract state.

268. There are two methods for reckoning with gas production from combination wells on the basis of velocity. Observations for one method are expressed in terms of the total quantity of gas issuing from the well per unit of time; as, so many cubic feet of gas at atmospheric pressure per day, etc. This we shall designate as "Gas Velocity" and, as stated above, its curve corresponds to the power-time curve for all controls.

The observations for the other method are expressed in terms of the quantity of gas issuing from the well per unit volume of liquid; thus, so many cubic feet of gas at atmospheric pressure per barrel of oil, or per barrel of oil plus water, etc. This is "Proportional Production of Gas." It is a method commonly used in engineering calculations upon combination wells today. Let us see what mathematical significance we may attach to it.

Proportional Production of Gas

269. The relation between pressure and gas in solution was a matter discussed under the Henry-van't Hoff Law. (Article 138, et seq.) The principles set forth in Article 145 have a direct bearing upon the present problem. Compare Figurs 145 and 247, the latter being the presure-time curve for this control.

The line ab in Figure 145 becomes the line A in Figure 247. The line A is at a distance P' from the X'-axis, and for P' there are M' mass units of gas dissolved per unit volume of liquid, a quantity which is to partially escape from solution upon production. We observe that M' is measured from the X'-axis irrespective of the position of other possible axes for X, and that it is a constant quantity throughout the life of the Hydraulic Control well.

When flow takes place from the orifice, M' splits up. A part of it, M, corresponding to P, has escaped from solution within the reservoir by the time the fluid has reached the immediate orifice. By the time all fluid is delivered at atmospheric pressure, a quantity M", corresponding to P", has escaped from solution. In the flow line between the orifice and the place of delivery under atmospheric pressure, the quantity free from solution increased by an amount M" minus M. A quantity C" still remains in solution but even part of this may be removed by the application of a vacuum, according to Article 143.

No Adopted Standard

Which of these quantities, M', M and M", is to be reckoned with as the true proportional production of gas? There appears to be no adopted standard for practice. Each engineer measures his proportional production of gas as he sees fit, according to conditions of pressure at the place where he makes his observations. His base line for such measurement may be located at any one of the infinite positions between the X- and X'-axes. A series of data may be absolutely consistent as to the pressure at which they were obtained, yet the Henry van't Hoff Law requires that any calculations based upon them shall consider the X'-axis.

Then our index numbers of Articles 265 and 267 can only be used in a qualitative capacity as a basis for comparison. Can we not provide them with a quantitative capacity? Yes; by the addition of the proper constant to each one of them. Then we may express the efficiency in handling the well in per cent, based upon the conditions we have adopted as standard. The calculation of the constant is a simple process in arithmetic, based upon the Henry-van't Hoff Law and the ratio between the potential and absolute pressures.

The presence of vapors will cause no difficulty. See the discussion on the Laws of Vaporization.

270. For all classes of combination reservoirs, the proportional gas production-time curve corresponds to the pressure-time curve. This important relation between the two curves is obviously based upon the foregoing discussion in connection with the Henry van't Hoff law. In Hydraulic Control we have found the pressure-time curve to be the straight horizontal line. It therefore follows that the proportional gas production-time curve for this control is likewise the straight horizontal line.

Again we have the mathematical coincidence between the style of formula and graph for two curves which bear a definite relation to each other and, as before, they are only alike in Hydraulic Control.

The proportional gas production, multiplied by the velocity for the liquid, equals the gas velocity. For example; a thousand cubic feet of gas per barrel of oil, times one hundred barrels per day, equals one hundred thousand cubic feet of gas per day. Expressed mathematically:

$$\frac{\text{Cubic Ft. of Gas}}{\text{Barrel}} \times \frac{\text{Barrels}}{\text{Day}} = \frac{\text{Cubic Ft. of Gas}}{\text{Day}}$$

The term "barrel" cancels in the multiplication as ordinary numbers or quantities do in the usual operations.

If we have made the proper analysis upon all of the terms in the above equation, as each is related to a corresponding function, we should be able to replace each member by its stated correspondent and thereby obtain a true relationship; thus,

$$P \times Ve = Po$$

An equation given in Article 266; the one upon which the analysis is based. Unless P and Ve are in proper units, it is essential that the equation includes some constant, K; so that,

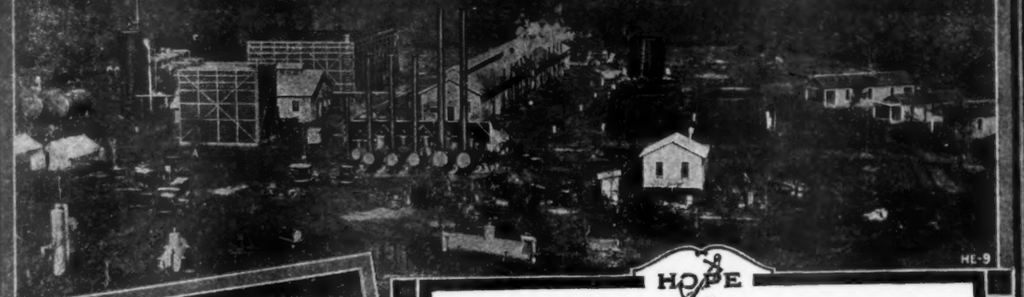
$$Po=KPVe$$

is the equation in the general form.

271. Corresponding to the fact that the area under the velocity-time curve represents units of volume, the area under the power-time curve represents units of energy. Both velocity and power are rates which must be multiplied by units of time in order to obtain units of the functional quantity with which they deal. The three axes give areas which correspond to the three energy curves of Article 264. For combination wells, then, the area under the gas velocity-time curve represents units of volume; i. e., accumulated gas. The argument presented in Article 259 in connection with Figure 252, concerning the relation between the velocity-time and volume-time curves, applies in an identical manner to the power-time and energy-time curves and, therefore, in like manner to the gas

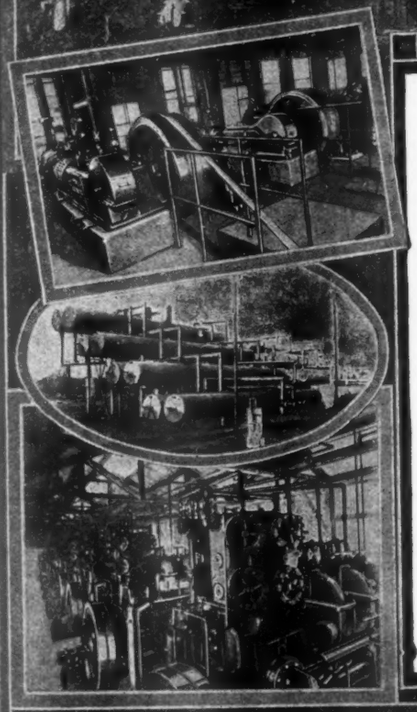
(Continued on Page 112)

The Most Gasoline at the Least Cost



HE-9

HOPE



This is the 52nd Hope-built gasoline plant, and the latest and largest achievement of Hope Service, with exceptional results due to Hope Experience and Hope Appliances.

It is 18 miles from a railroad and 4 miles from a highway. Clearing the site began August 20, 1924—production began November 19th, 1924—91 days for the completed job.

Average daily production in December, 22,000 gallons; in January, 24,000 gallons. Gasoline marketed in December was 108% of amount shown by most rigid charcoal tests.

To get the most gasoline per dollar of plant investment, in the shortest time—put it up to Hope.

ENGINEERS CONTRACTORS

HOPE Engineering & Supply COMPANY

MT. VERNON, OHIO, U. S. A.

DESIGNERS MANUFACTURERS

The Oil Insurance Association

Provides for

Real Fire Insurance for the Oil Industry

The Oil Insurance Association is in its seventh year of successful operation, with 100% performance record testifying to the dependability, thrift and speedy and complete satisfaction of its service.

OIL INSURANCE ASSOCIATION
MEMBER COMPANIES

Aetna Insurance Co., Hartford, Conn.
American Insurance Co., Newark, N. J.
American Alliance Ins. Co., New York, N. Y.
American Central Ins. Co., St. Louis, Mo.
American Eagle Fire Ins. Co., New York, N. Y.
Alliance Insurance Co., Philadelphia, Pa.
Automobile Ins. Co., Hartford, Conn.
Ben Franklin Underwriters, Pittsburgh, Pa.
Boston Insurance Co., Boston, Mass.
California Ins. Co., San Francisco, Cal.
Camden Fire Ins. Ass'n., Camden, N. J.
Central States Fire Ins. Co., Wichita, Kans.
Citizens Insurance Co., St. Louis, Mo.
Columbia Ins. Co. of Jersey City, N. J.
Commercial Union Assurance, London, Eng.
Commonwealth Ins. Co. of New York, N. Y.
Connecticut Fire Ins. Co., Hartford, Conn.
Continental Insurance Co., New York, N. Y.
Fidelity Phenix Fire Ins. Co., New York, N. Y.
Fire & Marine Underw't's, Hartford, Conn.
Firemens Fund Ins. Co., San Francisco, Cal.
Firemens Insurance Co., Newark, N. J.
Firemens Underwriters, Newark, N. J.
Franklin Insurance Co., Philadelphia, Pa.
Glens Falls Insurance Co., Glens Falls, N. Y.
Girard Fire & Marine Ins. Co., Phila., Pa.
Girard Underwriters, Philadelphia, Pa.
Great American Ins. Co., New York, N. Y.
Hanover Fire Ins. Co., New York, N. Y.
Hartford Fire Ins. Co., Hartford, Conn.
Home Fire & Mar. Ins. Co., San Francisco, Cal.
Home Insurance Co., New York, N. Y.
Hudson Insurance Co., New York, N. Y.
Imperial Assurance Co., New York, N. Y.
Insurance Co. of North America, Phila., Pa.
Insurance Co. of State of Pennsylvania, Philadelphia, Pa.
Jersey Fire Underwriters, Newark, N. J.
Liverpool & London & Globe Ins. Co., Liverpool, England
Mechanics Insurance Co., Philadelphia, Pa.
Mechanics Underwriters, Philadelphia, Pa.
Mercantile Insurance Co., New York, N. Y.
National Ben Franklin Fire Ins. Co., Pittsburgh, Pa.
National Fire Ins. Co., Hartford, Conn.
Natl. Security Fire Ins. Co., Omaha, Neb.
New Hampshire Fire Ins. Co., Manchester, N. H.
New York Underwriters Agency, New York, N.Y.
Niagara Fire Ins. Co., New York, N. Y.
North British & Mercantile Ins. Co., London, England
Norwich Union Fire Ins Soc., Norwich, Eng.
Palatine Insurance Co., London, England
Patriotic Insurance Co. of America, New York, N. Y.
Pennsylvania Fire Ins. Co., Philadelphia, Pa.
Phila. Fire & Marine Ins. Co., Phila., Pa.
Phoenix Assurance Co., London, England
Phoenix Insurance Co., Hartford, Conn.
Providence Washington Ins. Co., Providence, R. I.
Queen Insurance Co., New York, N. Y.
Reliance Insurance Co., Philadelphia, Pa.
Rochester Dept. Gt. American, New York, N. Y.
Royal Exch. Assurance Co., London, Eng.
Royal Ins. Co., Ltd., of Liverpool, England
Scottish Union & Nat. Ins. Co., Edinburg, Scotland
Security Ins. Co., New Haven, Conn.
Springfield Fire & Marine Ins. Co., Springfield, Mass.
St. Paul Fire & Marine Ins. Co., St. Paul, Minn.
Sun Insurance Office, London, England
Svea Fire & Life Ins. Co., Gothenburg, Sweden
Union Assurance Society, London, England
Union Ins. Soc. of Canton, Hong Kong, China
World Fire & Marine Ins. Co., Hartford, Conn.

Complete details of the Oil Insurance Association may be obtained from your insurance agent or broker.

Among the purposes for which the Oil Insurance Association were organized are:

To enable oil operators to secure sufficient dependable insurance to adequately protect their interests;
To furnish property holders and those controlling oil businesses expert engineering and inspection service, so methods of insuring this class may be standardized, and efficient fire protective devices installed and properly maintained, thereby stabilizing the business to the point which will enable insurance companies generally to accept the class at fair cost and under equitable policy rates;
To make available the most business-like insurance arrangement for all oil companies.

OIL INSURANCE ASSOCIATION
H. M. Carmichael, Manager
209 W. Jackson Blvd. Chicago, Ill.

NEW CONFERENCE ON PETROLEUM PLANNED ON MEXICAN LEGISLATION

By L. M. Fanning

That recent activities on the part of Mexican officials respecting formulation of a petroleum code may eventually lead to a resumption of conferences between government representatives and representatives of petroleum companies operating in Mexico, is thought possible. While there has been no move, so far as is known, on the part of the Mexican officials to bring about resumption of conferences, it is known that the committee of the Association of Producers of Petroleum in Mexico, which met with government officials in the fall of last year, is ready to continue negotiations whenever the Mexican Government desires. After submittal of its plan and discussion of various aspects of the situation revolving around Article 27 of the Mexican Constitution, the Mexican officials stated that good progress had been made toward a settlement of the issues involved. It has been generally understood that the committee has been waiting for the next move to come from the Mexican authorities.

The committee which went to Mexico City last September comprised C. O. Swain, general counsel of the Standard Oil Co. (New Jersey); General Avery Andrews, Shell Union Oil Co., and Dean Emery, associated with Frederick Kellogg, general counsel of the Doheny interests. Guy Stevens ,secretary and counsel of the Association of Producers of Petroleum in Mexico, was also a member of the committee but did not accompany it to Mexico City. The conferences were held largely with Secretary of the Treasury Pani and Sub-Secretary of the Department of Industry Schiaffino.

New Petroleum Legislation

There is little doubt but that an effort will be made to pass petroleum legislation in the next Mexican Congress meeting in September. At the present time there is a Mixed Commission comprising three members of the Mexican Chamber of Deputies, one senator, and Sub-Secretary of the Treasury Santaella visiting the oil districts. It is stated that the commission will study refining, transportation, production and all matters pertaining to the oil industry and that the findings of the commission will be used as the basis for preparing changes in legislatoin affecting Artice 27. The commission will visit President Calles at his ranch in Nueve Leon and discuss its report before returning to Maxico City, and the report, it is stated, will be presented to Congress when it meets in September.

A committee on petroleum of the Chamber of Deputies has been working on a law regulating Article 27 on mineral fuels, during the recess of Congress. The first part of the project of the committee has been made public and a translation has just been obtained by The Oil and Gas Journal. It follows:

Proposed Law

ART. 1. The eminent domain of the nation over the subsoil of its territory is inalienable and imprescriptible. Mineral fuels extracted from the subsoil for conversion into material for consumption and commerce are and have been transferrable by their nature and are acquired originally from the nation in conformity with Article 27 of the Political Constitution of the Republic, the dispositions of this Organic Law and the Commercial Code.

ART. 2. There are included under the generic expression "mineral fuels" all hydrocarbons in solid, liquid, gaseous or paste state, whatever be their components, species, varieties and derivations.

ART. 3. Without in any manner affecting the dominion to which Article 1 of this law refers, the Nation has had and has the power to transmit determined properties of its possession in favor of persons or associations legally capacitated to acquire them, for the constitution of private property. Consequently, the executive of the Union is empowered to grant through the Department of Industry, Commerce and Labor, all kinds of concessions, contracts and permits having as their object the exploitation for industrial and commercial ends of the hydrocarbons of the Nation, on the terms of this law and its regulation.

ART. 4. To satisfy the permanent needs of the State and the imperative exigencies of locomation, commerce, industry and national progress, the exploitation of hydrocarbons is declared a public utility, and, for the same reason, the owners of the soil shall give over in favor of the Nation the rights to the exploration and exploitation of the subsoil granted them by this law. This prescripition shall not include the private domain of the surface.

ART. 5. As an exception to the general rule contained in the foregoing article, the Executive of the Union shall establish by a formal decree and with the approval of Congress, "zones of petroleum reserves" on officially apportioned lands, sufficient to satisfy the future needs of the Nation. To the same end, he shall be able to limit at any time, the exportation of the various fuels, in the proportion and for the time required by the needs of the interior consumption of the Republic; and in case of civil or foreign war, he shall also be able to prohibit the exploitation and exportation of the same, for the time he may deem it necessary.

ART. 6. The States of the Federation shall not be able to legislate on the matter of mineral fuels, or burden the industry relative to the same with taxes of any kind. They shall solely be able to impose equitable contributions on buildings destined for this industry located in cities, towns or villages; and also up to two pesos per surface hectare on deposits in production.

ART. 7. It is a power reserved to the Executive of the Union to grant to the municipalities in whose jurisdiction the wells may be located, up to 2 per cent of the export taxes on the hydrocarbons exploited in the said municipalities; on the condition that the said sum shall be applied exclusively to the sanitation of the cities, the construction of roads, school buildings and hospitals. In order that the municipalities may enjoy the benefit conferred upon them by this article, they will have to remit together with their solicitation, through the Governors of the States and with a report from the latter, the plans of the works being projected with the buidgets and building contracts, to the Department of Treasury and Public Credit. On the basis of these documents and the guarantees the contractors give, the Executive of the Union shall act accordingly.

ART. 8. The Government has the right to exploit the subsoil of the Republic, indemnifying the owners for the damages the exploration may cause to the surface of the lands to which they hold title; and in the exercise of this power it shall be able to empower proprietors or renters of the surface to conduct identical explorations, at their own cost, when these have not been done officially.

Terms of Exploration

ART. 9. The owners or renters shall not need any special concessions to exploit the hydrocarbons which are found in the subsoil of their respective properties; but they must give due notice and fulfil the other requisites imposed upon them by this law and they shall be on equal terms with the concessionaires in regard to the payment of fiscal taxes and the delivery of the percentage in specie that belongs to the Nation.

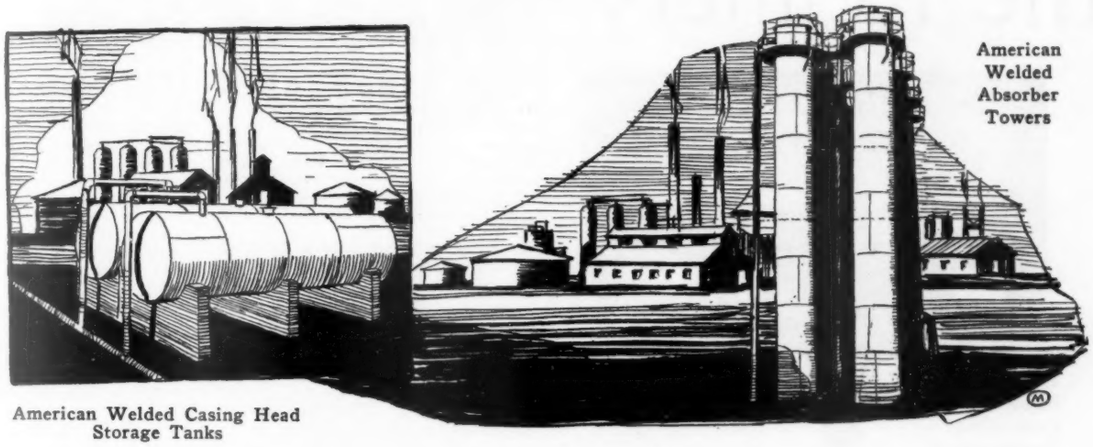
ART. 10. The exploration of hydrocarbons shall solely be burdened with.

1. The export tax. This shall be progressive in relation to the price and the outside demand.

2. The tax on profits, relative to hydrocarbons intended for interior consumption in the Republic, and

(Continued on Page 114)

AMERICAN TANK CO. TRADE Quality MARK WHOLESALE RETAIL



American Welded Absorber Towers

American Welded Casing Head Storage Tanks

American Welded Casing Head Plant Equipment

Absorber Towers,
Filtering Tanks,
Separators,
Pressure Tanks,
Vacuum Tanks,
Agitator Tanks,
Steam Stills,
Traps,
Settling Tanks,
Accumulators,
Storage Tanks,
Etc.

Use American Welded Tanks and avoid the enormous waste and great fire loss due to leaking gasoline tanks.

They are tested at 100 per cent above the actual working pressure.

We give you the best equipment and the best service at the fairest prices.

Put your needs up to us now.

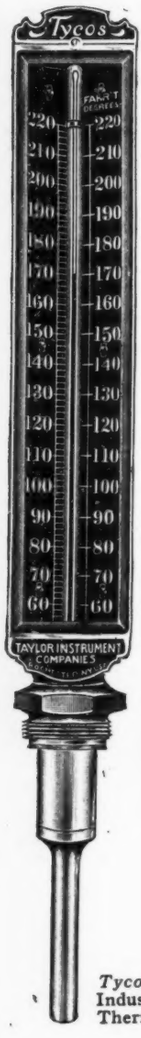
AMERICAN TANK COMPANY

OKLAHOMA CITY AND TULSA

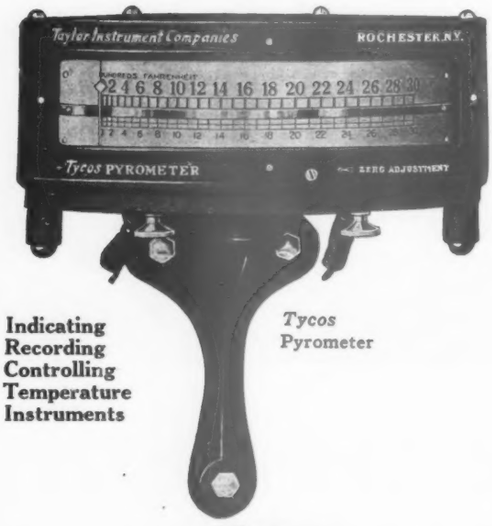
Service Given in the Following Fields:

OKLAHOMA
Blackwell
Tonkawa
Ponca City
Barnsdall
Hominy
Cleveland
Hallett
Manford
Pawnee
Cromwell
Yeager
Sand Springs
Cushing
Stroud
Davenport
Yale
Bristow
Slick
Duncan
Graham
KANSAS:
Winfield
Kellogg
ARKANSAS:
El Dorado
Smackover
Louann
TEXAS:
Mexia
Wortham
Corsicana
Nocona
Ranger
Breckenridge
NEW MEXICO
Farmington
Artesia

Tycos
for the Refinery

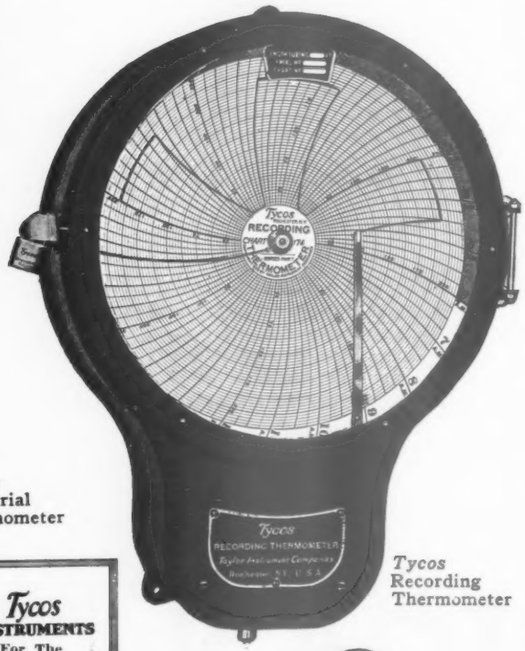


Tycos Industrial Thermometer

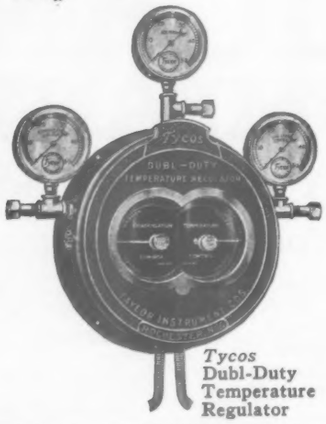

Taylor Instrument Companies
ROCHESTER, N.Y.
DEGREES FAHRENHEIT
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
Tycos PYROMETER
ZERO ADJUSTMENT

Indicating Recording Controlling Temperature Instruments

Tycos Pyrometer



Tycos Recording Thermometer



Tycos Dubl-Duty Temperature Regulator

Write for Oil Refinery & Laboratory Catalogs Now!

Taylor Instrument Companies
ROCHESTER, N. Y., U. S. A.
CANADIAN PLANT, TYCOS BUILDING, 110-112 CHURCH ST. TORONTO
THERE IS A TYCOS OR TAYLOR TEMPERATURE INSTRUMENT FOR EVERY PURPOSE

FLUID DELIVERY FROM OIL AND GAS WELLS

(Continued from Page 108)

velocity-time curve and gas volume-time curve for combination wells.

Summary on the Fundamental Primary Function Relations

272. We have now analyzed the six fundamental primary function curves for Hydraulic Control. (Article 8.) The infinite magnitude of this control (Article 91) is the cause of a monotony in style of formula and graph which tends to lead to confusion in the analysis of delivery. We have, nevertheless, so differentiated and assembled our mathematical facts that the line of reasoning employed in the analysis for this control will apply, without alteration, to the analysis of the finite controls. The results obtained, however, will differ. Such differences have already been indicated in Articles 78, 80 and 84.

In Table 272 the formulas for the six curves are grouped in convenient form for future reference.

Table 272

Equation No.	Relation	Delivery Formula	Mathematical Formula
1	Pressure-Time	P=K	$y=px^0$
2	Velocity-Time	Ve=K	$y=px^0$
3	Volume-Time	Vo=KT	y=px
4	Acceleration-T.	Ac=O	y=O
5	Energy-Time	E=KT	y=px
6	Power-Time	Po=K	$y=px^0$

These are the fundamental laws of delivery from all reservoirs of hydraulic control. All are expressions in potential phase; i. e., all the left-hand functions in Column 2 are measured from a potential zero which is determined by the constant back pressure against which delivery is taking place. The curves for these laws are drawn with these left-hand functions as ordinate and with "time elapsed" as abscissas. The positive direction of abscissas is to the right, the distances being measured from a left-hand origin which is adopted for the graphs of this control because the true mathematical origin, being at the end of the life of all reservoirs, in the present case is at an infinite distance to the right of the point reckoned with as the beginning of the life of the reservoir. The transference of the origin to the left brings about the change in the abscissas from "time remaining" to "time elapsed."

These fundamental laws apply to:

(a) Gas from reservoirs producing gas only.

(b) Liquid from reservoirs producing liquid only.

(c) Liquid from reservoirs producing both gas and liquid.

273. To the laws just given may be added the auxiliary laws which pertain to the gas from combination reservoirs. Adopting abbreviated expressions thus:

GVo=Gas volume, or accumulated gas
Gpp=Proportional gas production
GVe=Gas velocity

then the formulas for the three auxiliary curves are as shown in Table 273. Inasmuch as the relation between the gas and the solvent liquid always requires the consideration of absolute zero pressure, this being the condition specified by the Henry-van't Hoff law, we shall still refer these formulas and curves to the potential axis but insert the additive constant, C, which represents the proper distance between the potential and absolute axes. The source of the three equations is included in the table. The mathematical formulas are identical to those of the source equations.

Table 273

Equation No.	Relation	Delivery Formula	Source Equation
7	Gas vol.-Time	GVo=KT+C	5
8	Pro. gas pro.-T.	Gpp=K +C	1
9	Gas velocity-T.	GVe=K +C	6

These auxiliary laws may be made to serve as a basis of calculations upon the conservation of gas and the proper handling of the well producing fluids from combination reservoirs of hydraulic control.

Derived Primary Function Relations

274. In Article 9 the derived primary function curves were defined and it was there stated that we may construct 15 of them. In a strict mathematical sense, these 15 are only possible for reservoirs of finite control. When we attempt to derive the formulas and draw curves we immediately observe a peculiar mathematical truth; to wit, that the variable X in the mathematical formula must have some exponent other than zero in order that it may serve as absciassas for the curve. In other words, we are to take any two functions from those on the left-hand in Column 2 of Table 272 and determine the formula which expresses the relation between them so that we may, if desired, draw a curve between them. Now we find that either one of the two, or both of the two, must actually be variable because one function is to be taken as abscissas, a series of values is to be ascribed to it, and corresponding values in the other function which is to serve as ordinates are to be determined. If both functions are constant we are defeated in our attempt to express any relation between such functions. This, again, is the result of the infinite magnitude of hydraulic control. No such difficulty is encountered in the finite controls.

The only two functions which take on a series of values as the life of the hydraulic control reservoir proceeds are, according to Table 272, volume and energy. Then only these may serve as abscissas with which all other functions may be taken as ordinates. By algebraic computations upon the formulas of the Column 3 of the preceding table, the following Table 274 may be set up.

Equation No.	Relation	Delivery Formula	Mathematical Formula
10	Pressure-Volume	P=K	$y=px^0$
11	Pressure-Energy	P=K	$y=px^0$
12	Velocity-Volume	P=K	$y=px^0$
13	Acceleration-Vol.	Ac=O	y=0
14	Volume-Energy	Vo=KE	y=px
15	Power-Volume	Po=K	$y=px^0$
16	Velocity-Energy	Ve=K	$y=px^0$
17	Accel.-Energy	Ac=O	y=0
18	Power-Energy	Po=K	$y=px^0$

The remaining six derived relations are impossible from the point of view of mathematical analysis. Of the nine formulas given, all are straight lines; six are horizontal at some distance above the X-axis, two coincide with the X-axis, and one is inclined.

Regarding the relations for gas from combination reservoirs, the following substitutions may be made in the table:

GVo for Energy
Gpp for Pressure
and Gve for Power

These substitutions may be made at will, giving us a variety of derived laws for delivery from reservoirs of this control. The benefits to be derived from the knowledge of these relations will become evident upon investigation.

Pressure-Volume Relations

275. Equation 10 of Table 274 states the relation between pressure and volume for hydraulic control reservoirs. The hyperbola for Boyle's law in absolute phase is converted into the straight horizontal line for the potential phase in this control. The fact is so significant that we shall adopt the formula,

$$P=K$$

as the mathematical symbol for hydraulic control. The conversion is expressed thus:

$$PV=K \rightleftharpoons P=K$$

Pressure-Velocity Relations

276. The pressure-velocity relations are among those stated to be impossible of expression as a derived primary function law for this control. The explanation illustrates the rigor of methods of mathematical analysis which we have been forced to adopt.

As stated above, pressure and velocity for the ideal hydraulic control reservoir are both constant and, according to Article 274, no curve can be constructed between them because neither one takes on a series of values as the life of the reservoir continues.

Let us imagine that Torricelli, in making his determination on pressure-velocity relations, had confined himself to a single example of an ideal hydraulic control gravity solution tank. Say that the head

(Continued on Page 116)

"WESTERN" SUPER-POWER *for every power need in the* Petroleum Industry

Whenever you find leadership, which has extended over a long period of time, inevitably there is genuine merit back of it.

"Western" Engines of the different types adapted to oil country service have been leaders in the petroleum industry for more than a quarter of a century, and their popularity still is riding on the crest.

"Western" Duplex Engines—80-160 H.P. for gasoline extraction, pumping and boosting.
"Western" Twin-Duplex Engines—200-320 H.P. for gasoline extraction, pumping and boosting.
"Western Enterprise" Diesel Engines—65-250 H.P. for General Power Plant Service.
"Western" Oil Field Engines—25-50 H.P. for Oil Field Pumping, Pulling rods, etc.

Western Machinery Company
General Offices and Factory: 904 N. Main Street
Los Angeles, California

San Francisco Offices and Factory:
18th & Alabama Sts.

Branches:
Tulsa, Okla.
Bakersfield, Cal.

Efficient Dependable POWER

Write for catalog and actual records of performance of costs of any type of "Western" Engine.

Have You Considered the Gasoline Stabilizer for Your Plant?

The quality of your product is improved and the yield increased with no initial investment for The Stabilizer.

The c o r r e c t equipment for your individual plant is determined by our engineers without cost to you.

Our nationally known organization assures you of prompt installation of the apparatus and dependable engineering service during its operation.

Carbide and Carbon Chemicals Corporation

General Offices
Carbide and Carbon Building
30 East 42nd. Street
New York

Mid-Continent Field
Exchange National Bank Building
Tulsa, Oklahoma

Pacific Coast
Balfour Building
San Francisco, California

NEW CONFERENCE ON PETROLEUM PLANNED

(Continued from Page 110)

3. The percentage on the production stipulated in the concessions and established by this law in favor of the treasury.

ART. 11. Captains of vessels used for the transportation of fuels shall be obliged, in conformity with the fiscal laws, to present at Customs Houses, documents showing the capacity of the vessels' tanks, so this may be checked up by the technical inspectors of the Department of Treasury and Public Credit, before receiving the cargo.

The capacity of the railroad exportation tanks shall be ascertained by the said inspectors before they are loaded. The export tax shall be calculated and paid on the integral capacity of the said tanks or tankers.

ART. 12. The Executive of the Union is empowered to fix the price periodically at which mineral fields intended for interior consumption shall be sold in the Republic, by taking as a basis that which they may have in the other countries producing hydrocarbons.

ART. 13. The contracts and other transactions relative to the mineral fuels industry enumerated in Constitutional Article 27 and Article 2, of this law, shall be of a mercantile character whether they are made between private parties without the intervention of the Government or whether they be made with the latter, and they shall therefore be governed by the Commercial Code and the dispositions of this law, with the exception of the contracts on surface property, those being governed by the laws of the State where the immovables may be located, in conformity with Article 121 of the Political Constitution of the Republic, even when the said contracts have some relation to the industry to which this law refers.

ART. 14. The pipe lines in existence or those which may be constructed by private concerns in the future, shall be for public use and shall be subject to the transportation tariff issued by the Department of Industry, Commerce and Labor.

When the Executive of the Union deems it opportune, or proper, he may construct pipe lines and railroads to transport the fuels exploited by the Nation or by private concerns; this privilege is reserved to the State.

Technical Department

ART. 15. There shall be established in the Department of Industry, Commerce and Labor, a "Technical Department" to study the hydrocarbon industry and to settle all questions submitted to it by the secretary of the bureau, and to propose to the latter any reforms it may deem necessary.

ART. 16. The difficulties which arise between the concerns and the workmen shall be settled on the basis of Article 123 of the Political Constitution of the Mexican Republic and its Organic Law.

ART. 17. In conformity with the final part of Article 105 of the same Constitution, the Supreme Court of Justice is competent to settle as a court of final appeals (en unica instancia), cases on the extenction of concession and contracts which the Executive may grant by virtue of this law; and those on the prescription of the right of exploitation of petroleum deposits, which is granted to the surface owners. In the sequence of judgments there shall be applied to the matter the dispositions of the Federal Law of Civil Procedure. The decisions of the Court on the said cases shall constitute the lagel truth and shall have executory force.

ART. 18. The rights granted private parties under this law, to explor. and take advantage of the mineual fuels, shall be transferrable by inheritance, donation, barter, grant or sale and may be hypothecated or rented with the express warning, in each case, that they are subject to extinction and prescription.

Notaries who legalize contracts to which this article refers, must send them to the Department of Industry, Commerce and Labor; they shall abstain from authorizing them if those acquiring them be foreigners who have not fulfilled the requirements of Article 27 of the Constitution.

ART. 19. On the basis of this law and the Code of Commerce, companies may be formed to effect explorations and drillings for third parties on unexplored and undrilled deposits. In order to effect explorations a permit from the Department of Industry, Commerce and Labor is necessary; the latter shall issue this free from all taxes. In order to obtain it, it is necessary to designate the lands which one contemplates exploring and to make a formal promise to pay for the damages and injuries which may be done to another's property. Drillings shall be performed by means of the localization of wells, conducted with regard to the regulation of this law.

ART. 20. The exploitation of mineral fuels being a public utility, by virtue of this lands of private ownership shall be expropriable, to amounts strictly necessary to establish camps, pumping stations, storage tanks, refineries, roads, telegraphs, railroads and pipe lines. The expropriation shall be ordered by the Department of Industry, Commerce and Labor on the basis of indemnity. If the owner or owners of the lands oppose, the matter shall be proceeded with in accordance with Title II, Chapter 3, Section 4 of the Federal Code of Civil Procedure, and Constitutional Articles 14 and 27.

ART. 21. Exploiters or hydrocarbons shall have the right to establish docks, loading wharves and submarine pipe lines on the basis of concessions from the Executive of the Union.

These exploiters shall be able to use the surface waters they may need in accordance with the laws on the matter; and use the underground waters by permission from the Department of Industry, Commerce and Labor.

ART. 22. Deposits intended for the exploitation of hydrocarbons, shall have a surface area of from four to five thousand square hectares, limited laterally by geological vertical lines to an indefinite depth.

ART. 23. The surface of the national territory is considered as divided in the following manner, for the effects of this law:

1. Private property.
2. Property of undivided interest (pro-indivisa).
3. National property of common use.
4. Municipal property.
5. Village ejidos.
6. Waste or national lands not included under Fraction III.

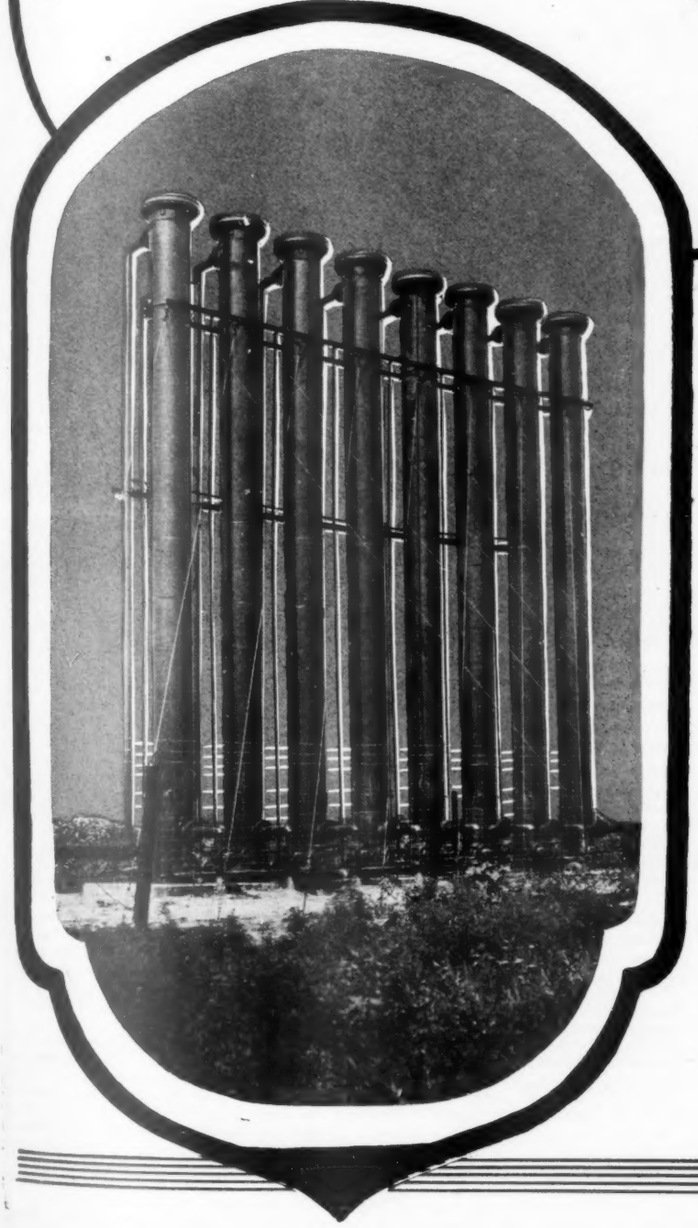
ART. 24. The Nation retains in its favor the ownership of the hydrocarbons existing in the subsoil of the ejidos granted or restituted to villages; but the Executive of the Union is empowered to grant to the said villages up to 20 per cent of the fuels which may be discovered under the surface of the ejidos and its total shall be distributed among the inhabitants.

NEW DESIGNS IN VALVES WILL BE ON EXHIBITION

In booth No. 104 at the Informashow, to be held in Milwaukee May 25 to 28, purchasing agents will find an interesting display of valves of bronze, iron and steel; pop safety, blowoff and non-return valves; water columns, water gauges and gauge cocks; lubricators; oil pumps, hand and mechanically operated; oil and grease cups; whiles, cocks, etc. Booth No. 104 has been reserved by the Lunkenheimer Co., of Cincinnati.

Of particular interest will be the new designs of Lunkenheimer super-pressure steel gate valves, made in all sizes, for 250, 400, 600 and 900 pounds working steam pressure, 750 degrees Fahrenheit temperature, conforming to the proposed American steel flange standards developing under A. E. S. C. procedure. Visiting purchasing agents will be welcomed at booth No. 104 and are invited to submit their valve problems to the men in charge of the exhibit, who will render all possible assistance in solving them.

Use Empire 720 Absorption Oil for Real Results and Economy



Absorption oil is one of our most important specialties. We operate many gasoline plants ourselves, and thru many years of practical plant experience have developed this exceptional product---Empire Absorption Oil.

Its high initial boiling point, relatively high gravity, and emulsion resisting properties, make it the most satisfactory and long wearing oil you can use. You will realize the true worth of this oil only by observing its actual performance in your plant.

Empire 720 Absorption Oil is an old standby with many of the most efficient gasoline plant operators---it can easily be yours.

Wire or write us for quotations and specifications.

We also offer high quality Naphtha for your blending plants.

EMPIRE REFINERIES INC.

SUBSIDIARY CITIES SERVICE CO.

CHICAGO 208 South LaSalle St. — NEW YORK 60 Wall Street

GENERAL SALES OFFICES-TULSA, OKLA.

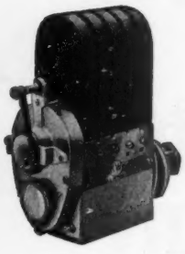
ST LOUIS 1123 Title Guar. Bldg. — ST. PAUL 330 Hamm Bldg. — FORT WORTH W. T. Waggoner Bldg. — KANSAS CITY 708 Commerce Bldg. — NEW ORLEANS 1107 Carondelet Bldg. — ATLANTA Hurt Bldg. — CLEVELAND c/o Cities Service Oil Co. — PHILADELPHIA c/o Crew Levick Co

Cities Service Oil Co., Ltd., 35 Shaftesbury Avenue, Toronto, Ontario, Canada

IGNITION SERVICE

Put your ignition problems up to us.

Ignition service is our specialty. We understand it—know how to handle it—and users are coming more and more to depend upon us for ignition results.



K-W MAGNETOS

We are exclusive Mid-Continent distributors for K-W Magnetos.

A complete stock of repair parts is carried, making it possible to render you quick service.

We also repair and carry a large stock of repair parts for WICO IGNITERS.

SPARK PLUGS

We are distributors of the famous "Green Jacket" Splitdorf and Mosler "Spit Fire" Spark Plugs in all sizes.

Whether it is service, repairs or ignition supplies, we are equipped to take care of you promptly and efficiently.

We are as close to you as your telephone. Call us at 2-8244.

MAGNETO IGNITION CORP.

304-306 East Second
TULSA, OKLA.

SPECIAL WATER COOLING SYSTEM IS AID TO GASOLINE OPERATORS

As one of the problems of the natural gasoline operator is to obtain an abundant supply of cool water, the special water cooling system developed by the Spray Engineering Co., of Boston, Mass., is of especial interest to the natural gasoline industry, according to B. R. T. Collins, vice president of the company.

The Spray system has been used successfully in a large number of gasoline plants throughout Oklahoma, Texas, Louisiana and Arkansas. It makes it possible for plants to obtain a cooling system range of 50 degrees Fahrenheit and still it reduces the water approximately to the wet bulb temperature under the existing atmospheric conditions.

In the gasoline plants, the circulating water generally is heated from 35 to 50 degrees, and, unless the quantity required is so small that it can be thrown away, it is necessary to cool the water through the same range in which it was heated to use it over again.

The Spray system consists of a shallow concrete basin with a partition in the center, on both sides of which are installed spray nozzles, spray heads and arms with necessary piping, spray tees and drip sprays so as to furnish the necesary capacity required in each particular case.

After the water has been sprayed into the first compartment of the cooling pond basin it is taken out by an auxiliary pump and sprayed a second time over the other compartment, thus obtaining a double spray effect.

By this system it is posible to reduce the temperature of the water from as high as 125 degrees Fahrenheit to between 70 and 75 degrees with the wet bulb temperature within the same limits and the dry bulb as high as 90 degrees. In other words when the air is 90 degrees and the relative humidity is 40 per cent, the wet bulb is approximately 71 degrees and the water can be cooled from 123 to 72 degrees. In some cases where natural water supplies contain a large amount of carbonates and sulphates it may be necessary to install a water softening plant in connection with the double spray systems to prevent concentration of solids in the shallow basins of the cooling pond and also prevent formation of scale in the circulating water piping.

The following tabulation gives actual results obtained from one of these systems which has been in operation in Oklahoma during the last five years. These results were obtained with a double spray system actually spraying the water twice:

Hours	Water Temp. Inlet	Outlet	Degrees of Cooling	Air Temp. Dry Bulb	Wet Bulb	Rel. Hmy
7 A.M.	102	68	34	61	55	68
8 A.M.	102	68	34	65	56	56
9 A.M.	105	68	37	74	60	43
10 A.M.	107	68	39	78	62	39
11 A.M.	110	69	41	82	66	39
12 N.	112	69	44	86	69	42
1 P.M.	115	70	45	87	71	45
2 P.M.	116	70	46	86	73	50
3 P.M.	112	71	41	87	72	48
4 P.M.	123	72	51	88	71	43
5 P.M.	121	73	48	89	71	41
6 P.M.	120	74	46	87	71	45
7 P.M.	120	74	46	85	71	50
8 P.M.	119	75	44	83	71	54
9 P.M.	120	75	45	83	71	53
10 P.M.	122	75	47	80	71	64
11 P.M.	122	76	46	79	71	68
12 P.M.	119	75	43	77	70	71
1 A.M.	117	76	41	76	70	74
2 A.M.	116	75	40	74	70	82
3 A.M.	114	75	39	73	69	86
4 A.M.	111	75	36	71	68	86
5 A.M.	110	74	36	71	68	86
6 A.M.	111	73	38	70	67	86

FLUID DISCOVERY FROM OIL AND GAS WELLS

(Continued from Page 112)

on the orifice was 30 feet and that the velocity of flow was 44 feet per second. It may be possible that he would have arrived at the conclusion that the two functions bore the following relation to each other:

$$v=1.47\ h$$

which would have been true for the given reservoir. Now, the important point is that he either varied the head on the orifice if he used but one tank, or he compared the flow from two or more such tanks having different heads. In other words, he did not derive his theorem from an experiment in what we have designated as hydraulic control, but in that which we specify as volumetric control. Only thus could he have obtained

$$v=\sqrt{2gh}$$

So he set up a series of mathematical reservoirs within one physical unit which served as a tank, (Article 38), or he dealt with a series of mathematical reservoirs which happened to be contingent upon several physical units. All these mathematical reservoirs were probably of hydraulic control during the time of his measurements on the two functions. One hydraulic control reservoir is related to another of the same control in accordance with the laws for volumetric control. (Article 90).

After once obtaining the proper formula for the relation between pressure and velocity by means of experimentation upon reservoirs of volumetric control, there is no reason why such a formula should not be applied to flow from hydraulic control reservoirs in order to compute the theoretic flow from its orifice. We may go farther and introduce empirical constants into the equation so that the results of a calculation with the formula will give a close approximation to the actual flow. In spite of all this, however, the equation does not become a law of delivery from hydraulic control reservoirs. This is strict adherence to the principles set down in the beginning of the present treatise.

UNION OF CALIFORNIA AIDS SHALE OIL TEST

DENVER, Col., April 18.—An offer of a site on Parachute Creek, near De Beque, for the $90,000 oil shale experimental plant to be built by the Government in Colorado this summer has been made by the Union Oil Co. of California.

The offer, which includes all the facilities the Union Co. can offer the Government on its shale holdings, was communicated to F. E. Shepard, superintendent of the Denver mint, and chairman of the oil shale committee of the Chamber of Commerce, for transmission to F. B. Tough, engineer in charge of the United States Bureau of Mines at Denver, who is now in the shale fields near Rifle examining other prospective sites. W. W. Orcut, vice president of the company, of Los Angeles, made the offer by telegram.

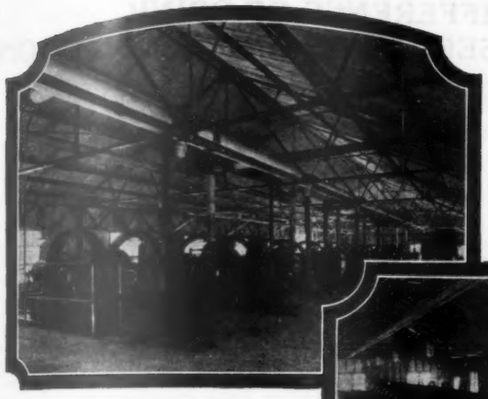
Chamber of Commerce officials communicated with Mr. Tough immediately. Final acceptance or rejection of the offer, however, must be made by the Washington officials of the bureau. The money for the construction of the plant was appropriated by the last Congress.

Mr. Orcut's telegraphed offer, addressed to Mr. Shepard, follows:

"We wish to offer United States Government free site for its proposed experimental shale oil plant on our property, known as Gardner ranch, located on Parachute Creek, or on any other property we own. Also free use of camp buildings, water, roads, trails and shale for above purpose. Good shale is available at minimum expense for mining and transportation.

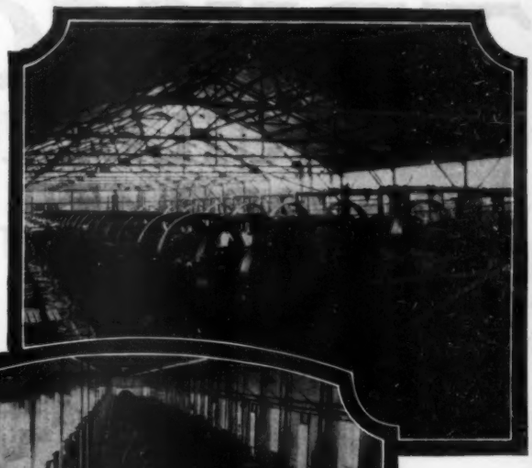
"Will you kindly present proposition to F. B. Tough, United States Bureau of Mines, and others in authority there, pledging them our best cooperation?".

The offer of the site, considered by chamber officials as favorable, was the second move by the Union Oil Co. of California to start development of its extensive oil shale holdings in Colorado. About a year ago, chamber officials said, the company appropriated $3,000,000 for use in oil shale experiments, taking the lead as the first private company to undertake extensive work along this line.

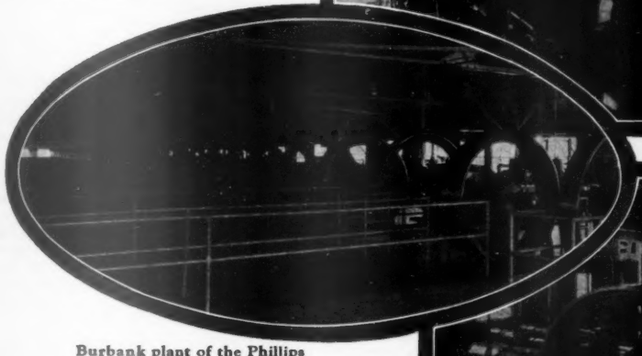


Hanlon plant No. 2 of the Chestnut & Smith Corp. is assured maximum running time with Bessemer power.

A Standard Oil Co. of Louisiana plant at El Dorado, Ark., operated with 5-165 H. P. Type VI Bessemers and 7-80 H. P. and 1-50 H. P. Type VIII Bessemers.



The Consolidated Gasoline Co's plant at Eastland, Texas, equipped with 8-80 H. P. Bessemer Type VIII Compressors and 1-70 H. P. Bessemer auxiliary.

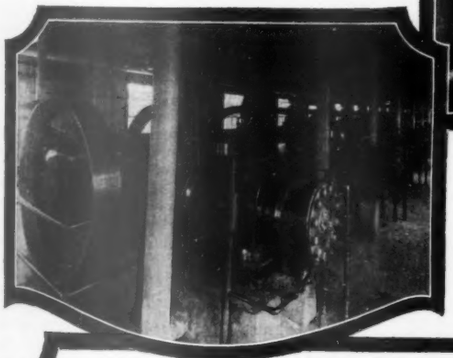


Burbank plant of the Phillips Petroleum Co. operating 20-165 H. P. and 1-80 H. P. Bessemers.

23-80 H. P. Type VIII B Bessemers in the Burbank No. 1 plant of the Skelly Oil Co.

This Cosden plant at Cromwell, Okla. is another Bessemer-equipped plant, operating 14-165 H. P. Bessemer Type Ten Compressors.

The Gypsy Oil Co.'s Burbank plant No. 1 is also Bessemerized. It operates 8-165 H. P. and 2-50 H. P. Bessemers.



A Texas Co. plant at Parks Camp, Texas—Bessemer-equipped, of course.

Wherever there are Gasoline Plants

IT'S a staggering figure that represents the number of Bessemers serving the Natural Gasoline Industry. Thousands upon thousands of Bessemer horsepower are constantly delivering the 99%+ running time that makes the Bessemer equipped plant the most profitable.

Their almost unbelieveable endurance, efficiency and economy have made Bessemers practically the unanimous choice of the entire Natural Gasoline Industry.

THE BESSEMER GAS ENGINE COMPANY

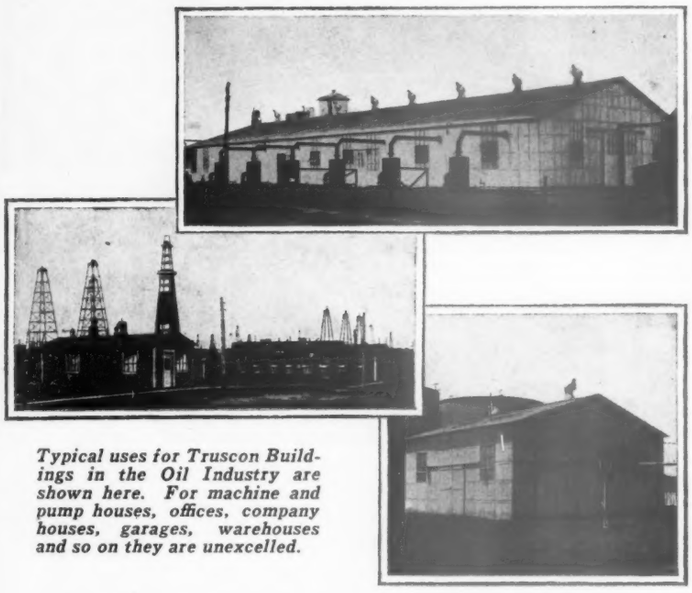
52 York Street ∴ ∴ ∴ ∴ Grove City, Pa.

BESSEMER

BESSEMER OIL FIELD ENGINES — COMPRESSORS VACUUM PUMPS — ROLLER PUMPING POWERS

TRUSCON BUILDINGS

STANDARDIZED FOR THE OIL INDUSTRY



Typical uses for Truscon Buildings in the Oil Industry are shown here. For machine and pump houses, offices, company houses, garages, warehouses and so on they are unexcelled.

Reducing Fire Hazards

Throughout the Oil Industry the most important structural item is fireproofness. Truscon Buildings standardized for the Oil Industry are completely incombustible,—and they satisfy other building requirements equally well.

Truscon Buildings are rigid, permanent structures, yet can be readily dismantled and re-erected in a new location. Their copper steel construction resists rust, corrosion and reduces maintenance costs. Standardized types, units and sizes for every building use.

Return coupon for Catalog and suggestions

TRUSCON STEEL COMPANY, Youngstown, Ohio
Warehouses and Sales Offices in Principal Cities
Canada: Walkerville, Ont. Foreign Division: New York

TRUSCON STEEL COMPANY, Youngstown, Ohio
Send me free Catalog on Buildings Standardized for the Oil Industry and suggestions on Truscon

Building to be used for.....

Type.... Height..... Length..... Width.....

Name .....

Address..... O.&G.J.4-23-25

OTHER TRUSCON PRODUCTS

Concrete Reinforcing, Steel Windows and Doors, Standard Buildings, Standard Trusses, Steel Roof Decks, Steel Joists, Steel Poles, Hy-Rib and Metal Lath, Highway Products, Platforms and Boxes, Foundry Flasks, Steel Stampings.

RADICAL DIFFERENCE OF OPINIONS ON CONSERVATION AND REGULATION

By N. O. Fanning

NEW YORK, April 20.—One significant feature of the answers to the questionnaires of the Federal Oil Conservation Board is the disagreement as to the future oil supply as to whether it is extremely limited, or practically unlimited.

This difference of opinion has existed in the oil industry ever since the first oil well was drilled. It is unfortunate that some means cannot be found to establish the amount of recoverable oil in the ground because many of the greater arguments ever present in the oil industry are directly traceable to that single ground of contention. One naturally turns to the technical branch of the industry to get an opinion on this question, but here the division of opinion seems to be as great as in any other branch.

The question of future oil supply, as applied not to the immediate future but to the future of 10 to 50 years from now, is one which many practical oil men prefer to let alone, not because they are indifferent, but because they do not see the possibility of any present determination one way or another.

As applied to the near future, the question of the petroleum supply is among the first in interest to everyone within the industry as well as to many of those outside. On this depends the price of oil as much as does the current course of supply and demand; at least the two form a combined influence on the price of crude oil

It can be stated with considerable justice, therefore, that the two questions, namely that of the distant oil supply and that of the supply of the immediate future, are two entirely different ones, each with no direct bearing upon the other. We may have a shortage of oil or a surplus of oil at present; the geologist or practical nontechnical oil man will admit that this has no direct bearing upon the supply 10 or 20 years from now, inasmuch as the situation relating to production and consumption may be entirely changed by then by a combined readjustment, or by an unforeseen change in either production or consumption of gasoline, so now none can say what product of crude petroleum will be most important 40 years hence, or what volume of its consumption will be, or how much crude it will require. Even though a geologist can estimate privately how much oil lies underneath the ground he cannot say how far it will go in supplying the needs of civilization; nor can he say how much will actually be recoverable, as new methods of recovery may be discovered.

Many, 30 years ago, could see the end of the world's gold supply. but new processes for mining the precious metal were devised so that mines then practically abandoned have yielded millions of pounds more.

May Aggravate Differences

In view of the apparent differences of opinion brought before the oil board as to the future oil supply there is every possibility that a sharp series of debates may arise which will be of indirect harm to the industry, especially since the question of the petroleum supply of 10, 20 or 50 years off will not be answered until that day arrives. And, as to the oil supply of this year or next, current consumption, production and prices will determine that better than all the arguments in the world.

The work of the Federal Oil Conservation Board is praiseworthy as it embodies an attempt to bring out the best thought of the industry on the subjects which most concern it. Publication of the answers so far given has proved illuminating. Conservation is doubtless to be the keynote of the board's work, and is a subject of extreme importance. Oil conservation can doubtless be further accomplished by increased recovery of oil from wells by decreasing evaporation, and so forth.

But there is another so-called method of conservation, advocated by some, which has to do with control of prices or artificial control of production, manufacturing or consumption. It is no secret that many in the oil industry today fear that such a method may be advocated in the board's findings.

In the opinion of some practical oil men any attempt to control prices arbitrarily, to control consumption by means of an embargo on exports, or any similar action, would upset the equilibrium of the oil industry more quickly than anything else that could be imagined. But such action has been freely advocated in several directions, since the Oil Conservation Board commenced its work.

Which all goes to indicate the difficulty of the board's work, especially in view of the great division of opinion on many subjects which the board will undertake to study.

The personnel of the board is trusted by everyone in the industry; good results are believed certain where citizens of such recognized standing and level-headedness are concerned. These men will doubtless recognize the division between conservation of oil and regulation of the petroleum industry.

Some Seek Regulation

There is no thought in this article of seeking to embarass the work of the Federal Oil Conservation Board through suggestions that its studies will not be of great value to the industry, for the fact is recognized that only through the study and the deliberation of such a disinterested body can progress be made.

However, there has, as stated, been evidence of sharp disagreement on the part of those who have answered the board's questionnaire, if reports emanating from Washington can be relied upon.

This difference lies largely in opinion as to the methods of "conservation," some arguing for strict regulation of the industry itself on the ground that the oil supply of say 10 years from now will be nearly exhausted, while others believe that although seasonal and cyclic fluctuations in consumption, production and prices are inevitable, the oil industry if left alone, will continue to supply civilization with its full requirements at reasonable prices as long as oil is needed.

The advocates of Government regulation of prices and of other branches of the oil industry have been largely looked upon as those interested politically in the question. It has often been overlooked that regulation is also advocated by some oil interests, who, while in the minority, are not without influence. The political advocates of Government control or its equivalent have already been discounted. The advocates within the industry, however, are not so generally recognized. Advocating what they sincerely believe to be for the best interests of the industry, they are entirely within their rights; there is no need of questioning their rights. As a fact, however, the existence of advocates of Government regulation within the industry is worth reporting.

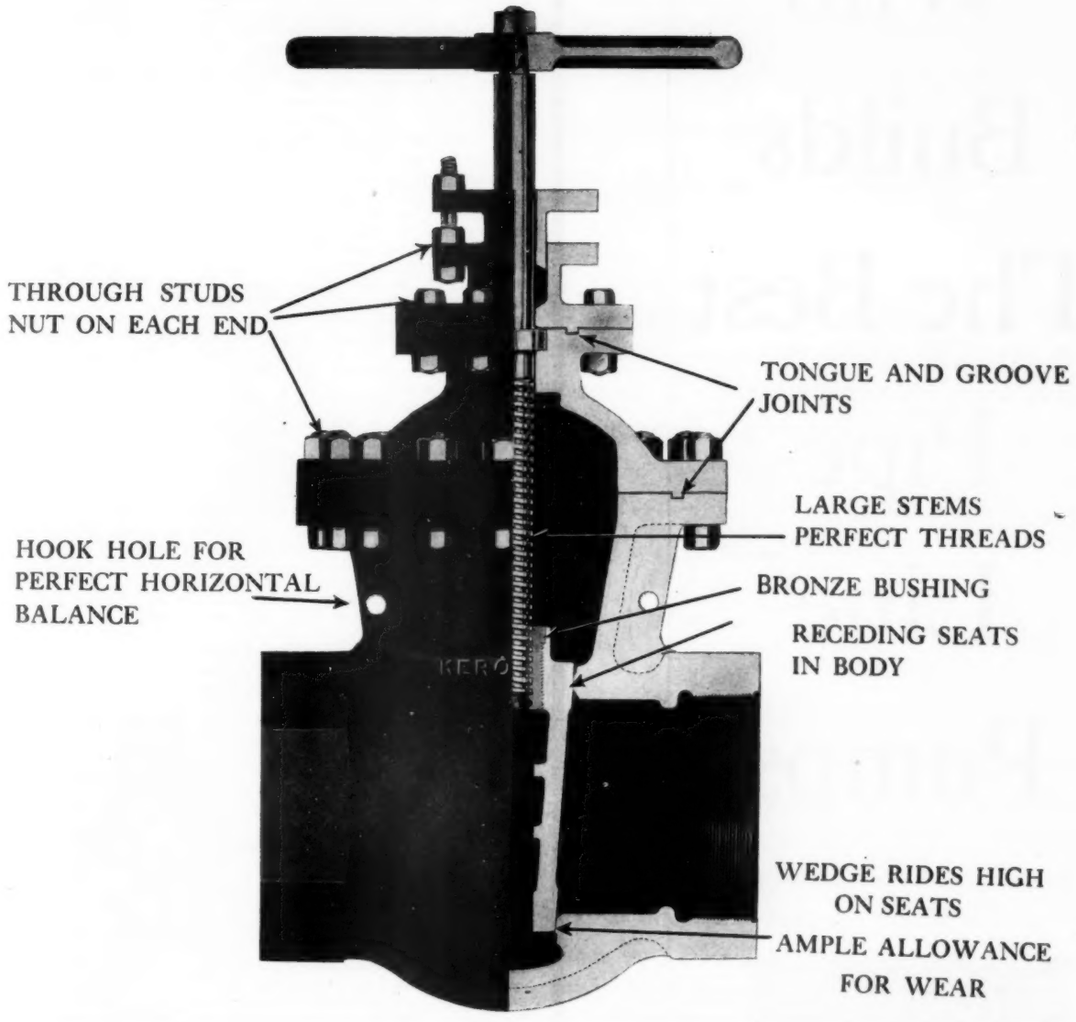
Work of the Board

The name of the Federal Oil Conservation Board suggests that it is the expression of public cooperation with the oil industry that everyone has been waiting for. Although individual effort has always been striving for improved methods of oil recovery, both for crude and refined, a digest of the best opinion on the subject, to be composed by capable and well informed men, will prove of immense value, and may start the ball rolling in the direction of concerted effort of the same nature as that of equipment standardization, for instance.

More economical operation is the goal which most every industry has always strived for. Oil is no exception, but the work is not yet completed. May the work of the Oil Conservation Board speed it.

VALVES KEROTEST FITTINGS

REGISTERED U.S. PAT. OFF.



The perfect balance and lightness in weight of the KEROTEST speaks well for its careful design. Its tough, Electric Ilmenite Steel Body proves its sturdy construction. The severe 24-hour kerosene test to which the assembled valve is subjected foretells durability for hard, practical service. And finally, the certificate of inspection that guarantees perfect manufacture.

The great success KEROTEST Valves and Fittings are enjoying on the wells and pipe lines of oil fields and their ability to withstand any sudden pressure that might develop from a gas pocket is due to two things—careful inspection during construction and careful testing before shipment.

There is a KEROTEST for all oil field purposes. Write for our illustrated Catalog.

Pittsburgh Reinforced Brazing AND Machine Co.

Pittsburgh, ... Penna.

Carried in stock and sold by

GRINNELL COMPANY OF THE PACIFIC
Los Angeles San Francisco

NORVELL-WILDER HARDWARE COMPANY
Houston Beaumont Shreveport

Export Distributors
OIL WELL SUPPLY COMPANY
Pittsburgh New York Tampico London
OIL WELL SUPPLY COMPANY
Oklahoma Kansas Colorado Wyoming

Who Builds The Best Pipe Line Pumps

PRESCOTT MENOMINEE

The Prescott Co.
Menominee, Mich.

WATER IS ONE OF MOST IMPORTANT FACTORS OIL FIELD OPERATION

(Continued from Page 86)

here 2 years old that ain't learned to swim yet."

Almost daily one reads in the news of municipal boards throughout the land who fret with much "whereasing and wherebying" in an endeavor to secure a good water supply. Much tape of a vermillion hue is necessary ere the local officials of Painted Post or Springtown devise the necessary ways and means to insure the construction of a water system for the 2,000 or 3,000 inhabitants of their villages. Notices are advertised and duly posted according to Hoyle. Contractors are invited to bid, much pomp and ceremony accompanying the letting of the contract; and ultimately a water system with a capacity of a couple of million gallons is evolved.

How Oil Companies Operate

What a different story when the smoothly running organization of a big corporation finds itself confronted with substantially the same problem. Department heads are called into conference. The most logical solution of the problem is presented, a trip to the fields by the heads of the engineering department and—presto—actual work on the project is commenced. Contracts are awarded, suitable machinery purchased, the necessary forces of workmen engaged, and the work proceeds in a smoothly, competent manner.

The Burbank Field, in northern Oklahoma, offered to the operating companies just such a problem as this. Situated in the richly productive Osage Nation, this great oil field occupied an important position in the Mid-Continent petroleum situation for some time. At the various Osage sales, Burbank leases commanded fabulous prices; prices that demanded the greatest speed and highest efficiency to obtain for each company its share of the flush production of the pool. Water was an all-important problem, and must be dealt with accordingly.

The Charlotte reservoir of the Phillips Petroleum Co., the source of water supply for that company's Burbank properties, and one of the most efficient water plants of the southwest is an example of what one company did to obtain the needed water. The Charlotte reservoir drains an area of 13 square miles, and has a capacity of 249,000,000 gallons. The embankment contains 48,000 cubic yards of stone, gravel and dirt, with 23,000 cubic yards in the spillway. The distance across the breast of the dam is 1,350 feet, and water backs up 1 mile. The depth of the water at the breast is 37 feet deep.

By gravity the water flows to the pump station which contains two 160 h.p. Bruce-Macbeth 4-cylinder gas engines, and goes to Cameron, 4 stage centrifugal pumps. Normal speed of the engines is 250 r.p.m., with a pump speed of 1,400 r. p. m. Total head in feet at the pump station is 685, with a head pressure of 295 to 310 pounds, and an average of 30,000,000 gallons of water pumped through the plant every month. Ten miles of trunk line, 10, 8 and 6-inch pipe was required, with many miles of feeder lines necessary to supply water to the Phillips company's five large gasoline plants, booster stations and various other operations.

The water system required 6 months to complete, and was constructed under the supervision of A. H. Riney, chief, and Tom Sears, assistant of the Phillips engineering department, and F. E. Rice, general superintendent of the Phillips gasoline department.

MEXICAN CONGRESSMAN OFFERS OIL PROPOSAL

Congressman Santa Ana has presented a proposal to the Mexican Congress to overcome the difficulties which land owners are having with Article 27 of the Constitution of 1917, according to a Mexico City dispatch to the New York Times. He proposes to establish the rights of land owners who purchased the property prior to 1917 to the sub-soil, but also to fix the right of the nation to have a 10 per cent interest in the products of the sub-soil.

"In conformity with Article 10 of the political constitution of the Republic," the proposal reads, "and also Article 2 of the law of November 25, 1916, the rights of owners of the sub-soil to exploit the mineral combustibles found in the sub-soil properties are recognized without the necessity of having a special concession; reserving to the nation 10 per cent of the hydro-carbons extracted, which will be delivered to the Government at the nearest shipping point."

If owners of lands fail to drill wells within 10 years the rights which are extended under the articles, in conformity with the Civil Code, 1086 and 1097, will revert to the nation. Once reversion shall have become effective the nation shall have the right to grant a concession.

QUESTIONNAIRE ON UNIFORM COST METHODS

(Continued from Page 86)

sites for other purposes such as battery service, tire service, etc., credited? Is it a service station revenue, a seles department revenue, or miscellaneous revenue of the company?

27. Are commodities used for plant consumption included in sales or are they carried in separate accounts?
28. Do you apportion your expense of main districts as between sub-stations and the main station, and if so, what method is employed for apportioning the district general charges against sub-stations, if any?

General

29. On what basis should general or administrative overhead expense, general taxes, etc., be apportioned to
    (1) Producing oil and gas?
    (2) Producing casinghead gasoline?
    (3) Operation of pipe lines, steamships, refining and marketing stations?
30. At the close of any fiscal period upon what principle do you value your crude oil?
    (a) On leases?
    (b) In pipe line storage?
    (c) In steamships?
    (d) At refineries?
    (e) At marketing stations?

U. S. OIL LESSEES LIABLE TO STATE TAX

WASHINGTON, D. C., April 18.—The United States Supreme Court today upheld the Montana law imposing upon oil companies operating within the State an annual license tax of 1 per cent of the total gross value of all petroleum and other mineral or crude oil produced. The case was heard upon appeal of the Mid-northern Oil Co., which contended that the statute, as applied to itself, was invalid because the company is a lessee of the United States and therefore is a "governmental agency, means or instrumentality whose operations cannot be taxed by the State."

The court held that Congress, in enacting the leasing act of 1920, intended "that persons and corporations contracting with the United States under the act, could not for that reason be exempt from any form of State taxation otherwise lawful."

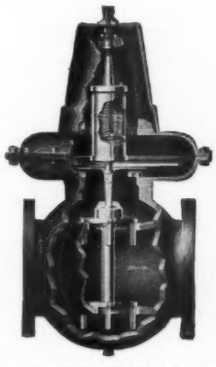
KRUPPS DESIGN DIESEL

The Krupps are reported to be at work on a new three-cylinder double acting Diesel engine capable of developing 3,600 b. h. p. at 90 r. p. m., or 1,200 b. h. p. per cylinder. The Krupp engine is of the two-stroke type, and employs solid injection of fuel. Simplification has been aimed at by adopting automatic fuel valves instead of having them operating from cams on the cam shaft. The timing of the injuection of the fuel is carried out on the fuel pumps themselves. The starting air valves are worked under oil pressure, so the engine will show a complete absence of any camshaft either at the bottom or the top of the cylinders.

Dependability is the thing to look for when buying automatic valves. Davis Valve Specialties are dependable. For fifty years they have been known as being mechanically simple devices which can be relied upon to function continuously and reliably. Repeat orders from many of the biggest producers in the field prove their worth.

Casing Head Gas Regulator

The Davis Casing Head Gas Regulator is an automatic valve designed to control the vacuum on oil and gas wells, receivers and tanks in the manufacture of gasoline. The counterweight holds it open—the vacuum closes it. A balanced bevel—seated disc with graduated port openings, securely coupled to a flexible diaphragm is its only moveable part.



Supersensitive Relief Valve

The Davis Supersensitive Relief Valve is designed for use when extremely low pressure gas relief is needed. It is particularly adaptable on light gauge separating tanks which are erected in the field. It may be set to relieve at atmospheric pressure or slightly more. It will relieve into a line carrying a vacuum or pressure less than the pressure to be relieved.

G. M. DAVIS REGULATOR COMPANY

409 Milwaukee Avenue Chicago

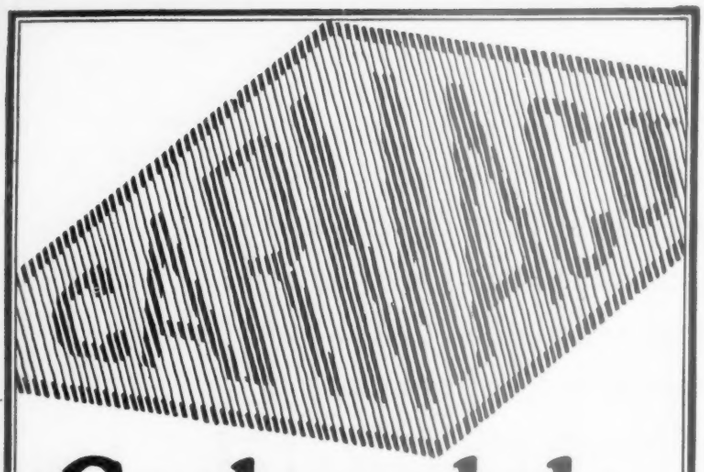
Westcott and Greis, Inc.—Sales Engineers

Tulsa Dallas Los Angeles

1875—Valve makers for fifty years—1925

DAVIS VALVE SPECIALTIES

OGJ4-23B-RTG



Carbondale Refrigerating Machinery *for* Refiners

WHEN you buy Carbondale filter presses, chilling machines, sweating pans and cold settling apparatus you buy engineering experience, gained over a period of thirty years spent in building the greatest percentage of refrigerating machinery used by refiners today.

Our long specialization in this field is your guarantee that the desired results will be fully and economically produced when you install Carbondale Refrigerating Machinery.

The Carbondale Machine Co.
Carbondale, Pa.

SALES OFFICES:

New York Chicago Kansas City Pittsburgh
New Orleans Houston Dallas Los Angeles
Baltimore Philadelphia Buffalo

You'll find us in the phone book

VALUE OF PUBLIC RELATIONS DEPARTMENT

(Continued from Page 88)

wreck, they had called the newspaper office and told them all they knew about it. But the management of railroads learned their lesson, and I think most of the important lines today have organized a publicity department.

Mistaken Methods

The following story is, I think, clear evidence of the progress that railroads have made toward better relations with the newspapers and the public.

A little more than a year ago—December, 1923—one section of the New York Central's Twentieth Century Limited crashed into the rear end of a preceding section with the result that about 15 persons were killed. It was a tragic and dramatic story. The accident occurred about 3 a. m., one Sunday so that the Sunday morning papers only had brief bulletins. With no afternoon papers on Sunday, the story was still of eight column line importance for Monday morning papers between New York and Chicago. The extra time, also, gave the reporters ample opportunity to get to the bottom of the disaster and uncover all of the color and drama that were part of the story.

Reporters who worked on that story tell me that they and their photographers were ordered off the railroad right of way and that guards were stationed along the tracks to keep them from taking pictures or from getting close to the debris. What a pitiful thing that was! A wreck out in the open, at least a dozen killed, the public generally anxious to know every detail and the reporters and photographers barred. What good could come of the barring? In these days of great scientific advancement, it would have been easy for a photographer to take pictures from a distance with a powerful lens on his camera and a picture would be just as full of detail as if taken close up. The reporters could get near enough to see the wreckage, and none could keep them from interviewing the injured and those who escaped for, of course, none of these remained on the tracks.

This condition, for a moment seemed to the reporters to be a reversion to the old methods and for a short time it was such a reversion. But, when headquarters of the railroad heard of the order, it was immediately canceled and all press representatives given carte blanche to go where they pleased. Some division official had issued the first order, and I understand he was severely reprimanded for it. He was of the old school; the headquarters chieftains were of the new school, and I don't know of any more striking example I can give you to show the change that is coming about and that this change still is in progress.

Getting It Straight

Another railroad story that will illustrate the change in view point concerns the wreck at Porter, Ind., about five years ago, when about 40 persons were killed. The New York Central and the Michigan Central lines cross each other diagonally there. The Michigan Central train had just started across the crossing, traveling at probably 35 miles an hour, when the New York Central train crashed into its side. That was about 5 o'clock one Sunday afternoon. When first reports of the wreck reached Chicago, the man on duty in the Associated Press office here immediately telephoned the offices of the two railroads. At the same time, he put in telephone calls for Porter and all towns near it. Over in the office of one of the local newspapers, the editors began arrangements to rush men to the scene by special train and tried to establish connections with Porter. They did not call the Chicago offices of either of the railroads. Perhaps they were so old and experienced they thought that the age still existed when a railroad would try to conceal news of a wreck. Or, perhaps, the young Associated Press man was too young to realize that, in years past, railroads had been pretty close mouthed. But, at any rate, the Michigan Central promised to give the Associated Press man a statement so soon as it could be prepared. Furthermore, they did so. Within five minutes after he called them, the railroad officials called back and dictated a brief prepared statement, telling the nature of the wreck and frankly admitting that between 25 and 40 persons were killed. This official announcement was shot out by the Associated Press while the paper I referred to still was struggling with extra edition copy in which they wondered if it would be safe to say that "it is believed that a dozen or more persons may have been killed."

Center of Information

Another instance in which a Department of Public Relations of a corporation functions is when it gives newspaper men a definite contact, a place of inquiry. Without such a department, say in our own company, a reporter might call up for some information and, not knowing what department he wanted, might be switched from one place to another before he found anybody who could answer his inquiry. Or he might come to the building and go from office to office or floor to floor before landing in the right spot. But with a department established, newspaper men invariable telephone me or come in to see me and, if I can't give them the information they desire, I do my best to secure it for them or put them in touch with the department which has it.

The Fourth Estate, a newspaper for newspaper men, recently, in discussing public relations, among other things said: "The very fact that many of the largest corporations in the country are recognizing the need of maintaining right relations with the public is alone important enough to secure a fair and even favorable hearing for their Public Relations Department."

"Whether a man is really entitled to the appellation 'counsel on public relations' or whether he should merely be called 'publicity man' rests entirely with the individual and the firm that employs him. As we see it, a man who is really conusel or director of public relations has one of the most important jobs on the roster of any concern; but a man who merely represents the old idea of getting something for nothing from publishers is about passe.

"So there is made plain the difference between the old and the new, both of which have occasioned much natural curiosity among newspaper men. * * *

"So long as this new professional branch live up to the possibilities that their title suggests, they are bound to accomplish general, constructive good. Maybe they, at last, will make us forget that ingratiating though insidious individual, the publicity man."

Not a Press Agent

Some people still think of the old press agent or propagandist, but a reputable public relations man wants to forget the name, press agent. The old press agent was a faker most of the time and was best known with the circus and theater. He had little regard for the truth, and his principal aim and highest ambition was to get a front page story printed on misrepresentations. In other words, he always wanted to put something over, disregarding fact. I am sorry to say that there are still some press agents abroad in the land, but their methods are so well known that a wide-awake newspaper man is always suspicious of them.

Speaking of press agents, I suppose the greatest of all was one P. T. Barnum. He got a lot of satisfaction out of buncoing the public, because he said the people like to be buncoed and fooled. There are many stories told of his activities, and you have perhaps heard of the one he pulled at his museum in New York City. There had been an Indian massacre out West, and it created great excitement throughout the country. Barnum advertised that this would be reproduced in his museum by native Indians from the Wild West. Of course, great crowds went to see the show. The participants were dressed like real savages with war paint and all the regalia that Indians would wear. They had re-

You Get Action!

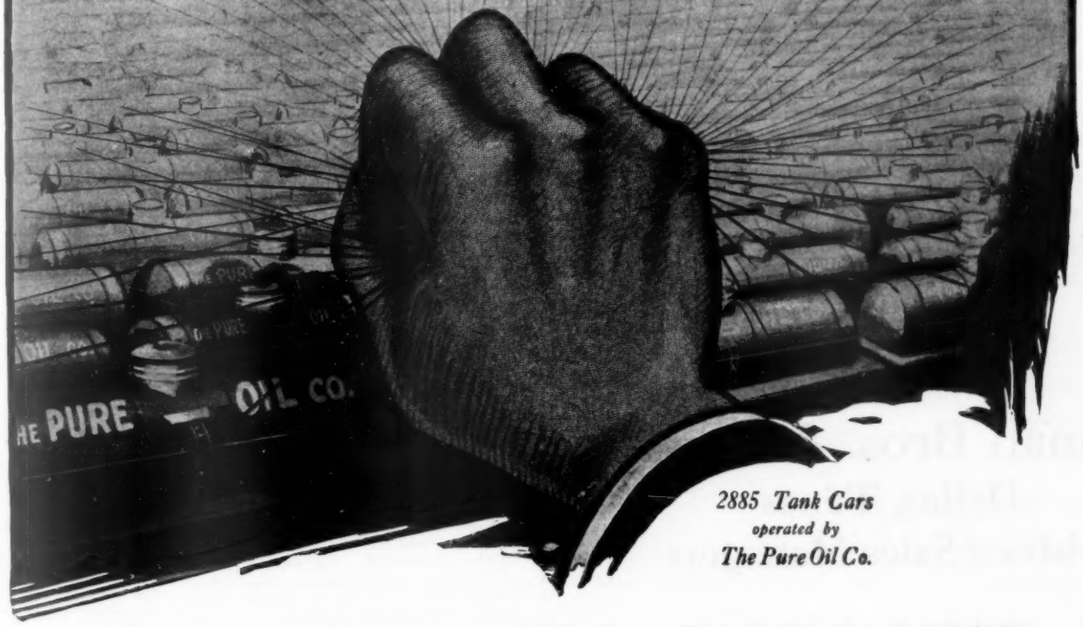
Arrival of Pure Oil shipments on schedule is never left to chance!

It is followed through by the refinery—by our sales offices, and by our Traffic Department,—a department made up of men who have had years of exacting experience in railroad traffic control.

Direct attention is given every one of the 2,885 tank cars in operation by us.

They move quickly, promptly,—on the dot.

"All Petroleum Products"



2885 Tank Cars
operated by
The Pure Oil Co.

THE PURE OIL COMPANY

General Offices: COLUMBUS, OHIO

Independent — and successful, through unvarying high quality in all its products

Refineries at:		*Branch Offices at:*	
MARCUS HOOK, PA.	MINNEAPOLIS, MINN.	CHICAGO	PITTSBURGH
WARREN, PA.	CUSHING, OKLA.	DALLAS	WARREN, PA.
HEATH, OHIO	ARDMORE, OKLA.	NEW YORK	TULSA, OKLA.
CABIN CREEK JCT., W. VA.	MUSKOGEE, OKLA.	MINNEAPOLIS	CHARLESTON, W. VA.
SMITH'S BLUFF, TEXAS			

MANILA

DRILLING CABLES
BULL ROPES
REGULAR LAY

We know they don't come any better than

AJAX

Gives

YOU

Eastman Bros. & Russell
Dallas, Texas
District Sales Managers

R. S. O. Lawson, President

SEND US A CATALOGUE AND ROPE DOPE

Name.....

City.....

State.....

hearsed as thoroughly as it was possible to do, and Barnum was getting away with his stunt in great shape until a couple of the actors who happened to be Irishmen pulled off some of their regalia and swore they would die from the heat if they had to wear that stuff.

The theater press agent also trys to get away with stunts. You all remember the story printed about a certain actress who took a milk bath every day to maintain her health and beauty. Just a few weeks ago there was a questionable show put on in New York, but it was not going very well, so a story was given out that the leading lady had gone to the management and demanded that she be released from her contract, as some of the lines were so shocking she could not speak them. This was given out after she had rehearsed several weeks without a murmur. The truth of the matter was that it was purely a press agent's yarn, no truth whatever, and the show finally closed. These things are just pure, unadulterated bunk and no reputable publicity man or public relations man would attempt such a thing. It is just this sort of work that has discredited the press agent, and that is why I say honest, straightforward public relations men want to forget the term "press agent."

A director of public relations should not "press agent" anything. He should not be a propagandist. He should be a sort of "liaison officer" between the people and the institution he represents.

New Policy Makes Progress

Because there is no profession, during the past ten years, that has broadened its field and extended its usefulness as much as that of public relations, I believe that young men and young women entering the field of journalism should be familiar with it and know something of the manner in which it functions. I shall not be surprised to see the colleges, before very long, establish a course in public relations for students.

Most of the men in responsible editorial positions are cognizant of this new policy, but I doubt if the rest of the public understands it thoroughly, although doubtless it has sensed something of its existence. At the annual meeting of the American Society of Newspaper Editors held in Washington, D. C., last January, this question received considerable attention by the editors. While I have not seen the complete report of the discussion, yet I have been informed that the editors at that meeting were in agreement that departments of public relations had developed to the point where they should be recognized. Some of the editors expressed the opinion that a department properly handled could be of real service to the press of the country.

A study of the work of a department of public relations shows that such an opinion is justified. The man in charge of it, if he is reliable, is expected to furnish iformation to the papers. Many, many times, he may prevent misunderstandings, and errors may be avoided. Most newspaper men are fair and naturally don't want to be misled, but in many instances it is a physical impossibility for newspapers to cover all the daily events. They are always looking for news, and if a corporation has it, the papers, I believe, appreciate any assistance the public relations manager may give them, especially if they have confidence in him.

In my experience, I have had little difficulty in dealing with newspaper men, when I had established confidence. In giving information to a paper or to a public man, I always check and re-check the facts and figures for absolute accuracy and reliability. I could no more sponsor a misstatement or an inaccurate one than fly to the moon, as such a thing would be fatal.

I have never asked newspapers to print a story as a personal proposition, but I have given stories to the papers, if I thought they had merit or news value and left the question of publication to the editor. I have made it a rule never to send trivial stuff to the press, and I would not ask a newspaper man to color or write anything favorable to the concern I represented. One hears a great deal about the business office of a newspaper controlling the editorial policy. That may be true in some instances, but so far as I am concerned I never have gone to the business office to get an item into a paper. I know hundreds and hundreds of editors in the United States but very few advertising managers or business managers. After 20 years of newspaper work and training, I know that 99 out of every 100 newspaper men are honest and mean to be fair, and I am willing to leave any matter I may have in their hands after I have submitted the facts to them.

Editors Mean to Be Fair

I know that, in the past, unfair editorials and stories have been printed because of lack of facts or information. In some cases this was due to the author's failure to get the exact truth with reference to the proposition, or his inability to get all sides of the controversy, or perhaps to the injured party's refusal to furnish the writer with what he wanted. Naturally, when important plans are being made, or negotiations of considerable moment are one, it would be fatal for a business to make these known until the negotiations were completed. Many times, however, matters of this sort leak out, and then newspapers insist upon something, not knowing the situation, but it would be a mistake to make the matter public at that time.

During the past coupie of years there have been, perhaps, half a dozen or more editorials printed in the newspapers about our company, which I thought were unjust and unfair. In some instances the author of the editorial was either partially advised or not advised at all about the situation. In every one of these instances, I called upon the editor, sat down with him in his office and went over the situation endeavoring to show him where he did us an injustice, that was harmful to the management, to the employes, and stockholders. In each case, I was successful in convincing the editor that he was in the wrong, and he was anxious to make proper amends. I think every editor said if he had been properly advised in the first place, he would never have written the editorial. Some of them claimed they did not know that we had a public relations department but that, in the future, they would inquire before making another mistake.

I want to give a few illustrations here to show how the public relations department has been of service in the past. You will pardon, I am sure, any reference to myself, but I want to relate my personal experience in the matter.

A few years ago there was an important bill pending in one of the large committees of the United States Senate, providing for the regulation of one of the largest industries in the country. Hearings were ordered by the Senate committee, and the industry decided naturally, of course, to oppose this bill because it contained many radical innovations.

Serving the Public

I suggested to the industry that the hearings should be fully reported. Having had some experience in Washington as a newspaper man, I knew how impossible it was for correspondents to cover every news source in Washington, as there are many times, dozens and dozens of hearings going on at the same time. I said to the people I represented, that I wanted to have those hearings covered as a big newspaper would do it—if someone testified that the industry was crooked, and the men were dishonest, we should say so in our story. It always had been the custom in Washington at previous hearings, when some publicity man was on the job, for him to tell only his client's side of the question. But I took the position that a partisan, colored story would get nowhere and that we might as well attempt nothing unless we told the whole story. This was agreed to. I employed two Washington newspaper men to help

"WE ARE THOROUGHLY SATISFIED"

SPECIFICATIONS

DOUBLE GRADE "A"

Gravity	80-87.9
End Point	375 or under
Recovery	90%

GRADE "A"

Gravity	72-79.9
End Point	375 or under
Recovery	90%

DOUBLE GRADE "B"

Gravity	84-92
End Point	375 or under
Recovery	85%

GRADE "B"

Gravity	76-83.9
End Point	375 or under
Recovery	85%

GRADE "C"

Gravity	80-90
End Point	375 or under
Recovery	78%

GILLILAND OIL COMPANY

TULSA, OKLAHOMA

P. J. HURLEY, PRESIDENT

April 14, 1925.

Warren Petroleum Company,
414 First National Bldg.,
Tulsa, Oklahoma.

Gentlemen:-

We are thoroughly satisfied with the services of your organization in handling our output of natural gasoline.

You are to be complimented for having built up such an efficient sales organization, to serve the natural gasoline manufacturers.

Your thorough knowledge of market conditions and your close contact with the purchasers of this product have enabled us to handle our gasoline, through you, to a most excellent advantage.

I feel sure that you have created a service that should be equally as valuable to other manufacturers as it has been to us.

With every good wish for your continued success, I am,

Yours very truly,

P. J. Hurley

PJH/H

NOW RENDERING

an economical service to 21 natural gasoline plants located in

OKLAHOMA

Oilton
Kiefer
Stonebluff
Three Sands
Glenpool
Barnsdall
Bixby
Drumright
Shamrock

TEXAS

Burkburnett
Desdemona
Breckenridge

LOUISIANA

Homer
Haynesville

There you have a conservative statement: "We are *thoroughly satisfied* with the service of your organization."

We can render you that same valuable service because we have an experienced organization which maintains a close contact with the purchasers.

WARREN PETROLEUM COMPANY

"JUST NATURAL GASOLINE"
DIRECT FROM PLANT TO YOU—A CAR OR A TRAINLOAD

414 First National Bank Building, Tulsa

"A rose by any other name would smell as sweet"

Call it a—
Fractionating Tower
Knock-out Box
Primary Condenser
Auxiliary Condenser
Dephlegmator
Bubble Tower

or anything else you please. *But* it cannot operate at maximum efficiency unless the temperature is automatically controlled.

Reruns Eat Up Profits

The Foxboro Automatic Temperature Controller has proved a most reliable device for obtaining close cuts and eliminating reruns.

It positively controls the volume of oil or water circulating through the condenser and gives a permanent record of the temperature at all times.

Many of the biggest refineries in the Mid-Continent field are equipped with Foxboro Automatic Temperature Controllers. Our engineers at Tulsa will be glad to give you all the information you desire. Or write to Dept. O.

THE FOXBORO CO., Inc.
Neponset Ave., Foxboro, Mass., U.S.A.
213 South Cincinnati Ave., Tulsa, Okla.

New York Chicago Boston Philadelphia Pittsburgh
Cleveland Rochester Birmingham Los Angeles
San Francisco Portland, Ore.

FOXBORO
REG. U. S. PAT. OFF.
THE COMPASS OF INDUSTRY

me and told them to forget that they were being paid by the industry, but as far as possible to write a fair and impartial story. Naturally, of course, they were not to neglect or overlook anything favorable to our side, but to be fair, and not to make it a partisan thing.

So we started in on that basis, and there was always one of those reporters present while the hearing was going on. About 11 a. m. we wrote a story covering what had happened so far that day. This was neatly mimeopgraphed and distributed by messenger to every newspaper and correspondent in Washington. At the end of the day, a comprehensive story was written covering the whole day's proceedings, and copies of it were made and sent, in the same way, to the newspaper men in Washington. This sort of thing was unprecedented and so unusual that many of the correspondents could not understand it and asked me about it. It was not long until all of the newspapers, with the exception of one press association, withdrew their representatives from the hearing and left the matter entirely in our hands. In other words, it was only a short time until we had the confidence of the correspondents, and they realized we were not trying to put something over. One government official was kind enough to say that it was the best job he had ever heard of and called it "The 1920 model of publicity." Now I take the position that, while I was trying to help my clients as much as I could yet I know I was of great help to the newspaper men. All they, or any honest newspaper man cares about, are the facts, and he cares little where he gets them, if he has confidence in the man who gives them to him. I think that experience there changed the whole attitude of business organizations that had any business in Washington and needed publicity in connection with it. We didn't write partisan stuff, we didn't try to be propagandists. I maintain that was constructive publicity.

Of Human Interest

Not long ago, I checked up and found there were about 2,600 employes of the Standard Oil Co. (Indiana) who had been awarded gold service buttons. These buttons are given to the employes of 10, 20, and 30 years standing for loyal and faithful service. Almost all the employes are proud of this recognition and invariably wear their buttons. It occurred to me that they would be of interest to the newspaper men in the 10 States where we operate, so I made up a list, by States, of the 10, 20, and 30-year men, and wherever there was a town that had a daily or weekly newspaper, and one or more employes wearing a button, I sent the story. I had the names and addresses mimeographed, wrote a short story about the plan, had it mimeographed and, with a personal letter to each editor, sent this to more than 500 newspapers in our territory. I think I received about 50 letters from the editors thanking me for the story, saying it was just such news they were always glad to have. The total publicity in connection with that affair amounted to more than 80 columns the size of those in the Chicago Tribune. I didn't ask any editor to print the story, but practically all of them did print it and, in many instances, played it up. It had a double effect—it showed the public at large something of the policies of the company, and besides it made all the employes happy to see their names in the local papers.

Practical Publicity

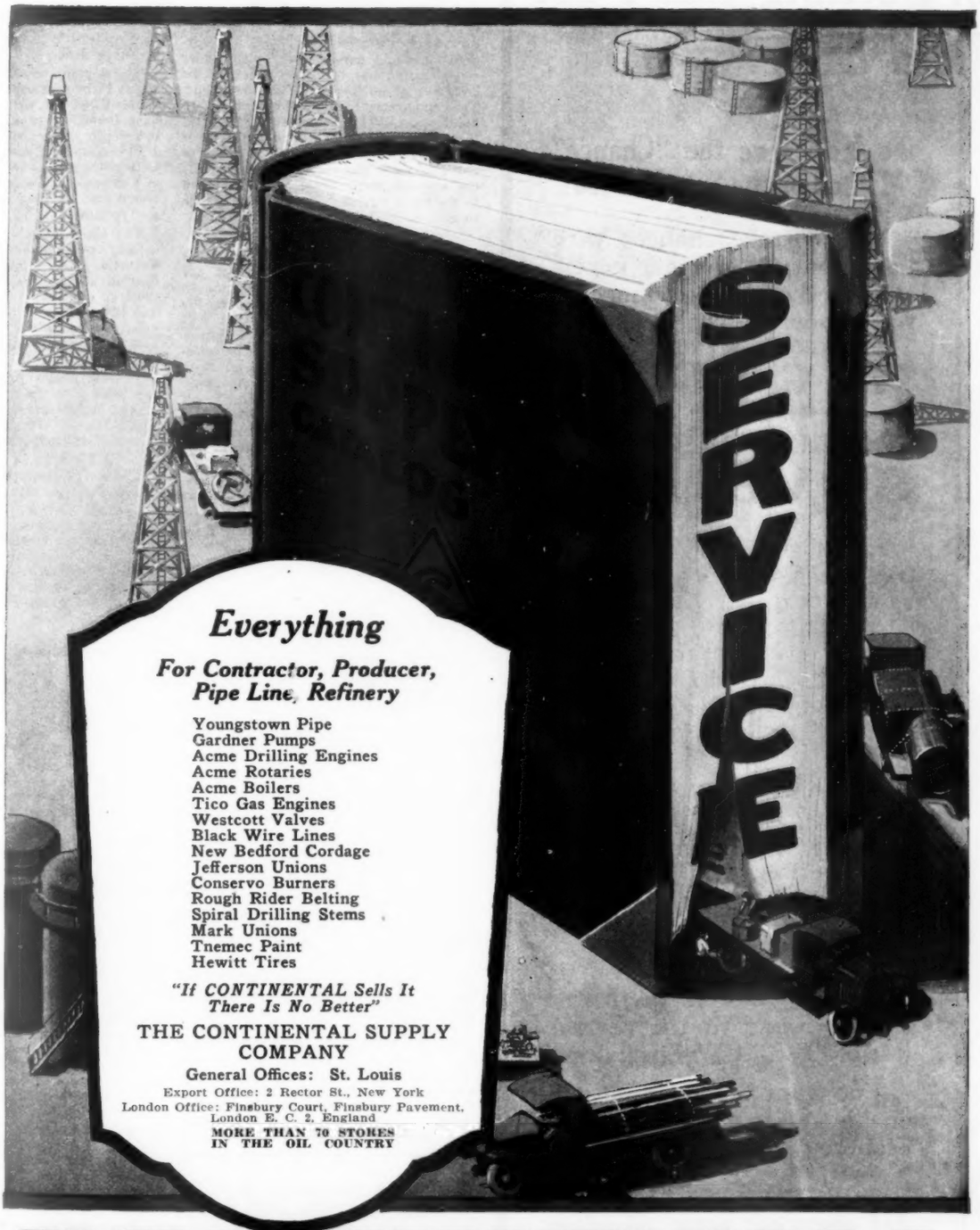
The useful functioning of the public relations department was also evident some months ago when the Department of Justice of the United States filed a suit against our company and 50 other oil companies with reference to certain patents. The publicity man of the Department of Justice in Washington, so arranged the release of this information, that it would be printed on the same day of another very important event. Of course, the filing of such a suit received wide publicity. A few weeks later, when the time came for the different companies to file their answers to this suit, I took the proposition of our answer up with our general counsel, and showed him the importance of getting it ready in ample time so that it would be given to the press in advance. We prepared about a 1,200-word resume of our answer, and I took it and eliminated all the legal phraseology and technical terms possible. The day our answer was filed, I sent a copy of it with this resume out for release. As a result, all the press associations printed good stories, setting forth our position. According to the clippings received, I believe every paper in the United States that received any kind of telegraph news service had something about our answer. I also sent copies of it to the trade papers. All the other oil companies filed their answers, some before we did, others after, here in Chicago in the same court but, so far as I know, not a line was printed in any daily newspaper in the country about theirs. The only reason for this, I imagine, was that the other companies did not go to the trouble of sending their answer to the papers or having an abstract prepared. A legal document of that character contains much that is not interesting to the average reporter, and I doubt if many would have enough interest to read a proposition of that sort through carefully. Another thing, a man not familiar with the situation, might overlook important points, so I feel in this case, that I was in a position to be of great service to the newspapers and press associations, in giving them copies of our answer in advance.

I have referred to the fact that I always attempt to be absolutely accurate and sure of my facts, and just what I have related is a splendid example of the importance of such accuracy. The answer to the government bill in the Federal Court went, as I have said, to practically every newspaper in the United States that had any kind of press service. It affected one of the greatest industries in the country and, no doubt, every individual paper was scrutinized for editorial writing purposes by editorial writers in the country. No doubt, this reply of ours was studied by government officials, Senators, Congressmen, and had we made the smallest of an intentional error either in the physical facts or in our interpretation of them-some one would have caught it. If one paper has say 500,000 readers, the individual reporter has only those 500,000 as possible judges of his accuracy, and it is ten to one that a much smaller number will actually read his particular story. But the big story of a big corporation is inspected by millions, not only in this country but even abroad. Evidently, then, there is no place where accuracy is so necessary as in public relations.

Requirements for Position

Just what qualifications are necessary for one entering the new field of public relations? The first qualification should be several years of newspaper training. The reason that this training is a requisite for such a position is that one must not only have the news sense or instinct, but also be able to create news. No doubt, there are hundreds of interesting things happening every day among corporations that would make good stories and be real news, if there was only some live, trained newspaper man on the job, who knew news when he saw it. But I do not mean to say that I believe all newspaper men are qualified for such a position. A director of public relations should have personality; he should be a student of men and affairs; he should be a student of economics, of politics; he should know human nature; he should be a diplomat; he should be honest; he should be frank.

Mr. Bernays in his interesting book, in discussing the work of public relations, makes this observation: "Perhaps the chief contribution of the public relations counsel to the people and to his client is his ability to understand and analyze obscure tendencies in the public mind. It is true that he first analyzes his client's problem—he then analyzes the public mind; he utilizes the medium of communication between the two, but before


SERVICE
Everything
For Contractor, Producer, Pipe Line, Refinery
Youngstown Pipe
Gardner Pumps
Acme Drilling Engines
Acme Rotaries
Acme Boilers
Tico Gas Engines
Westcott Valves
Black Wire Lines
New Bedford Cordage
Jefferson Unions
Conservo Burners
Rough Rider Belting
Spiral Drilling Stems
Mark Unions
Tnemec Paint
Hewitt Tires
"If CONTINENTAL Sells It There Is No Better"
THE CONTINENTAL SUPPLY COMPANY
General Offices: St. Louis
Export Office: 2 Rector St., New York
London Office: Finsbury Court, Finsbury Pavement, London E. C. 2, England
MORE THAN 70 STORES IN THE OIL COUNTRY
CONTINENTAL

When Feeding Gas Fuel to Field Boilers---

Do You Use the "Chance" Method or the Safe Method?

Do not take chances with hand control, or other uncertain methods of feeding gas fuel to your field boilers.

FISHER
BOILER GAS FUEL
GOVERNOR

Install a "FISHER" Boiler Gas Fuel Governor and be safe, as well as free from worry.

It is a Lever and Weight Control, with a diaphragm actuated by boiler pressure, which actual tests have proven to be the most positive and sensitive control.

The valve body is provided with a by-pass to furnish gas to the pilot light.

The usual high quality of workmanship and material is embodied in this regulator that is found in the regular line of "FISHER" Specialties.

You want a device that will enable you to get the greatest economy in operation. We have it.

Ask about our other specialties used in Natural Gasoline Plants

Write us

THE FISHER GOVERNOR CO.

Dependable Specialties

367 Fisher Ave. Marshalltown, Iowa

he does this he must use his personal experience and knowledge to bring two factors into alignment. It is his capacity for crystalizing the obscure tendencies of the public mind before they have reached definite expression that makes him so valuable."

For one to succeed in a position of this character, he must know what is going on. He must have the confidence of the executives whom he represents. A corporation might have some problem under consideration but be in doubt as to the best way of putting it before the public. The management might be anxious to know what the reaction would be after the announcement of the policy. It is up to the public relations department to not only sense the reaction, but see that the announcement or story is prepared in the right way and, if possible, arrange to give it out at the appropriate time.

Character and Confidence

Most of all, next to character, confidence and knowledge of his subject, the director of public relations must possess the rather rare ability to prepare his material in form and terms that will make it attractive to the newspapers and to newspaper readers. The effectiveness of his work will depend upon whether he writes it with a sympathetic understanding of the public view point or merely as a statement satisfactory to his employers. He should be able to put himself in the public's place and gauge the reaction.

While the public relations man is responsible to his employers, yet he is equally responsible to the public, upon which every business institution depends for its existence. He cannot misrepresent anything to the public, because when the press and public lose confidence in him his usefulness has been destroyed.

I doubt if the profession of public relations will ever be established independently as other professions like law, medicine, etc., for the reason that large corporations are establishing a department of public relations, and the man in charge is expected to give all of his time to that corporation. If he does, he will have no time for outside affairs. I know, in my own experience, that all of my time is occupied with our company, and I could not possibly look after the interests of any other. However, one might have a few small clients, none of which would require more than a part of his time.

Although public relations is practically a new profession or a new department in an institution, yet it is growing, and having a great influence upon the public. I think it received its greatest development and boom during the late war. I don't mean to say that publicity won the war, but I do say it was a big factor. As a result of what publicity accomplished during the war, it has firmly established itself in this country. Besides business institutions, governments and departments of governments, colleges and churches, labor organizations and individuals realize the great power and influence of constructive publicity, and I think there is but one field from which men competent to do such work can be obtained, and that is from newspaperdom.

OIL POSSIBILITIES IN NEW MEXICO AND UTAH

(Continued from Page 96)

the pipe lines began operating there were ten 250-bbl. tanks full of stored crude and two more were being built, but the pipe line facilities are fully adequate to take care of the production thus far.

Of the four fields in New Mexico only the Artesia Field appears to have a future greater than its present status. The Hogback and Rattlesnake pools are not expected to do better than 500 bbls. a day each this year, while the Seven Lakes Field is a negligible quantity in the general production scheme, but Artesia has everything ahead of it. While there is no way of reckoning at this time how big the field will be or how much it will produce it is not expected to be one of the feature fields of the country and while much attention is being given to Artesia by oil men outside of it, it is not expected that 1925 will be its busiest year.

A great many wildcat wells will be drilled in the southeastern part of New Mexico this year and it is probable that two new fields will be opened in that area but there is nothing upon which to base an estimate as to the size of these probable fields.

The northeastern part of New Mexico seems to be a granite country, and many wells drilled in that part of the State have found the granite at a rather shallow depth. The California Oil Co.'s No. 1 Florsheim, SW cor. Section 15-23n-24e, Colfax County, was stopped by granite at a depth of 2,556 feet. It was the most recent test to have drilled to this hopeless formation.

The Union Oil Co. of California has a drilling well on the Bartlett ranch in Vermejo Park, Colfax County, C NW Section 23-31n-18e. The total depth of the test when last visited was 3,192 feet and two strings of tools were lost in the hole. The well was drilling for the Dakota sand which was expected at 3,500 feet.

The Marland Oil Co. will soon start a test 30 miles northwest of Tucumcari, in the northeastern part of the State. The Marland Oil Co. of Colorado had its choice of 200,000 acres out of a block of 800,000 acres.

The only other important test in the northern New Mexico is that of the Gypsy Oil Co. on Tract B, on the Ute reservation in San Juan County. It is located on the center of the west line of the SE NE Section 16-32n-14w. It shut down all winter at a depth of 2,920 feet, but recently resumed drilling, only to run into a fishing job. The objective is the Dakota sand at approximately 3,100 feet.

Utah's Record of Exploration

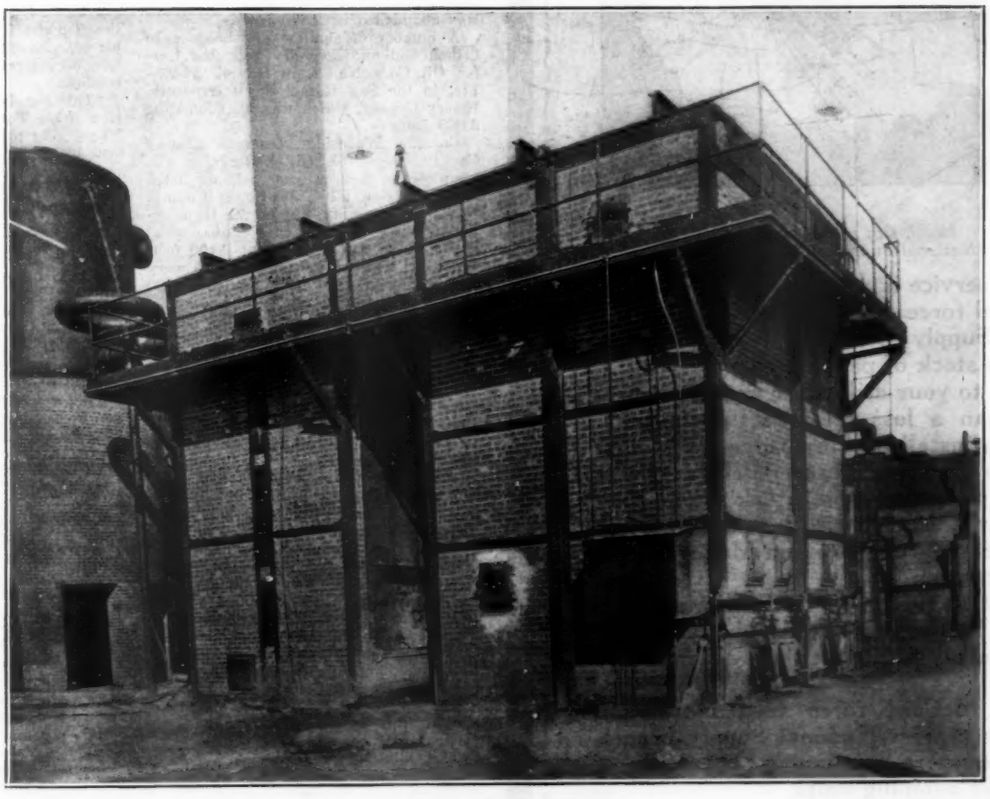
Utah has two oil refineries, one with a capacity of 5,000 bbls., and the other a small skimming plant, but it has very little production as yet. It has one small oil field, located a few miles southwest of Virgin, in Washington County, in the extreme southwestern part of the State, where a number of shallow wells have been yielding a small production for years. The indications for large production in that area have never been very favorable. A deep test was drilled on the Virgin Dome by the Virgin Dome Oil Co., NW cor. Section 16-42s-14w, which quit at a depth of 2,800 feet with no encouraging showing of oil or gas.

The one district in Utah which has every indication of opening an oil field is the Boundary Butte district, San Juan County. The Southwest Oil Co., a subsidiary of the Midwest Refining Co., drilled a well in the northwest corner of Section 22-43s-22e, and it had a showing for a 50-bbl. well in the Shinarump sand at a total depth of 1,568 feet. On account of casing trouble it was impossible to complete the well. Quite a number of wells were started on the Boundary Butte structure after this but none of these was drilled to the Shinarump sand, as all the operators shut down to await the outcome of a trial between the United States Government and the Midwest Refining Co. to test the validity of the leases in the Boundary Butte area.

Tests for oil have been made in 16 counties in Utah. The largest amount of wildcatting has been confined to the eastern part of the State, especially in Grand and Emery counties. Eastern Utah offers better opportunities for oil development than the western or northern parts of the State, but even that part of Utah has never given operators very much encouragement. Practically every test in the State has been drilled many miles from a railroad and a large producing field would have to be assured before a pipe line company could be induced to lay a line. It would be at least two years before any oil discovered in the State would be shipped to a large refinery. Of course small skimming plants could be erected near a new field but their capacity would necessarily be small

FOSTER

TUBE STILLS



Foster Tube Still in Mid-Continent Field

The result of over 20 years of experience in solving problems requiring use of heat.

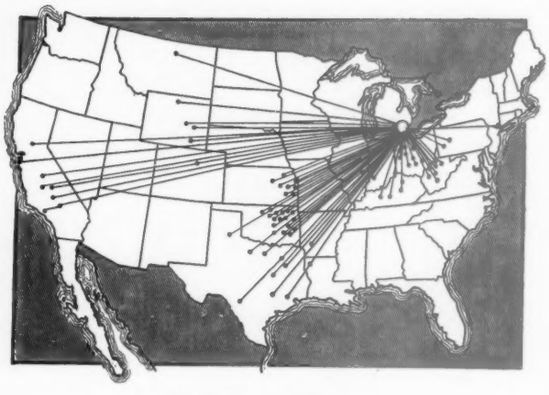
Foster Tube Still design prevents overheating by rapid and positive circulation, assures uniform heating by arranging all tubes to supply heat with practically equal effectiveness, secures minimum fuel consumption by gradual, continuous, thorough heating effect with complete combustion.

POWER SPECIALTY COMPANY

111 Broadway, New York

Branch Offices in All Oil Centers

SERVICE that blankets the Oil-Field



Each Dot represents a National Supply Co. Branch

When service is needed which is seldom on McCord force feed lubricators, there's a National Supply Company branch nearby carrying a stock of parts.

Delays to your drilling or pumping operations mean a loss of dollars per minute. When you install McCord force feed lubricators you avoid unnecessary delays. Parts delivered promptly from stock when they are required is a service rendered by the National Supply Company on McCord force feed lubricators.

Prompt service on parts is just one reason why more McCord force feed lubricators are used in the oil fields than all other makes combined.

Order McCord force feed lubricators from your nearest National Supply branch and insure more continuous operation of drilling and pumping units.

Distributed in the oil fields by

The National Supply Co.

ALL BRANCHES

McCord

force feed

Lubricators

Standard of the Oil fields

McCord Radiator & Mfg. Co., Detroit

LUBRICATOR DIVISION

on account of the small demand for refined products in the sparsely settled State.

The most promising looking structure in the State at this time is the Cisco. The Utah Oil & Refining Co. (Midwest) found 40,000,000 feet of gas in the Frontier sand at 1,954 feet in a test located on the center of the west line SE SE Section 25-20s-21e, Grand County. This company is drilling four tests on this structure with the Dakota sand series as an objective. The company is quite optimistic as to its possibilities.

Testing Other Structures

Other structurea that have been or are being tested include the Crescent, Thompson and Moab, in Grand County; San Rafael Swell, Woodside, Huntington and Salt Wash, Emery County; Organ Rock and Hulkite in San Juan County; Gainesville and Nequoi in Wayne County; Clay Basin, Daggett County; Circle Cliffs, Garfield County; Hill Creek, Uinta County; Nephi in Juab County; Farnham, Carbon County; Chalk Creek and Coalville in Summitt County. Completions are on record in the following cases:

Bix Six Oil Co.'s No. 1, Section 34-25s-21e, Moab structure, Grand County, was abandoned at 2,870 feet.

A number of shallow dry holes were drilled and one deep dry hole, the Carter Oil Co.'s No. 1, in Section 34-23s-11e, in the San Rafael Swell structure, Emery County, which was abandoned at 3,035 feet.

On the Woodside structure, Emery County, the Utah Oil & Refining Co. completed a helium gas well at 3,375 feet in Section 1-19s-13e, Emery County. In the same county, but on the Huntington structure, the Ohio Oil Co. abandoned a test in Section 2-17s-8e, at 3,100 feet, and on the Salt Wash structure, Emery County, the Leonard Oil Co. quit at 2,800 feet in Section 8-21s-9e.

The Wilson Cranmer Syndicate abandoned a dry hole at 2,100 feet in Section 35-42s-14e, Organ Rock structure, San Juan County.

The Monument Oil Co. finished two failures on the Hulkite structure in San Juan County, in Section 23-42s-17e, at 1,680 feet and the other in Section 19-42s-18e, at 1,800 feet.

The Ohio Oil Co. went to 3,650 feet before quitting a test in Section 29-28s-8e, in the Gainesville structure in Wayne County.

The Texas Production Co. tested to 2,280 feet in Section 34-29s-16e, in the Nequoi structure, Wayne County, and finding no oil or gas, abandoned the hole.

The Producers & Refiners Corp. was shut down at 4,020 feet when the operation was last reported, in NW cor. SW Section 22-3n-24e, on the Clay Basin structure, Daggett County.

The Prairie Oil & Gas Co. of Wyoming was drilling at 507 feet on the Clay Basin structure, Section 27-3n-24e.

The Ohio Oil Co. abandoned a hole at 3,212 feet in Section 24-34-7e, Circle Cliffs structure, Garfield County.

The Utah Oil & Refining Co. drilled the deepest test on the Hill Creek structure in Uinta County, Section 32-14s-20e, abandoning it at 2,150 feet.

The Ohio Oil Co.'s No. 1 in Section 6-2n-6e, Chalk Creek structure, Summitt County, was dry and abandoned at 3,104 feet.

The Western Empire Petroleum Co. drilled to 1,900 feet in Section 16-2n-5e, Coalville structure, Summitt County, and abandoned the test.

Notwithstanding the discouragements which have met the operator in Utah thus far it is expected that in the next 12 months more wells will be drilled in that State than ever before in the same length of time.

An idea of the topography of a part of Utah may be gained from the fact that the Utah Oil & Refining Co. in drilling its test in the SW cor. NE NW NE Section 6-27s-21e, Moab structure, Grand County, 9 miles south of the Big Six Oil Co.'s dry hole, found it necessary to truck the material 30 miles to the Grand River and then transfer it to a barge and run 20 miles down the river. Getting oil out of such a area as that, it will be seen, would be a very difficult and expensive item.

British Opinion of Agreement Reached Regarding Irak Oil

Commenting upon the agreement between the Irak Government and the Turkish Petroleum Co. for the exploitation of Mesopotamian oil fields, The Investors Chronicle of London says: "This agreement may mark the close of a long-drawn-out struggle between various oil interests which has at times tended to strain relations between Britain and America, and to a lesser extent some other powers.

"The British participation in the Turkish Petroleum Co. has been somewhat reduced, but Britain would still appear to be the predominant partner therein, although this does not mean that such predominance is due merely to the indirect interest which the British Government hhas in the Turkish Petroleum. The Anglo-Persian, in whose capital the British Government holds controlling interest, was advised to reduce its interest in the Turkish Petroleum from 50 to 25 per cent, to satisfy the demands of American oil interests for a share in the concessions.

"This has been done, and final allocation of the Turkish Petroleum capital is: 25 per cent to the Anglo-Persian; 25 per cent to the Royal Dutch-Shell group; 25 per cent to the Compagnie Francaise des Petroles (which represents 67 French oil companies), and 25 per cent to American companies (including Standard Oil of New Jersey, Standard Oil of New York, Gulf Oil Corp., Pan-American Petroleum & Transport and Sinclair Consolidated Oil Corp. The fact that the Royal Dutch Shell group is 40 per cent, British must be borne in mind, and grouping the capital interest by its nationality, the final result is that the Turkish Petroleum may be said to be about 35 per cent British, 15 per cent Dutch, 25 per cent French and 25 per cent American. It is provided in the agreement, which runs for 75 years, that the chairman of the company shall be British.

"The present capital of the Turkish Petroleum itself is only 160,000 pounds. Some of the papers hve stated that its capital is 1,000,000,000 pounds, but they obviously intended to convey that that large figure is some measure of the vast capitalization of the various undertakings whose claims on the Mesopotamian oil fields have now apparently been amicably settled. The development of the fields will involve very large capital expenditure, for as yet they are virtually virgin soil, while if oil is proved in sufficient quantity a pipe line stretching for hundreds of miles across the deserts to the Mediterranean will probably be the most economic way of transporting the production to markets.

"A director of the Anglo-Persian Oil Co. stated that plans for the exploitation of the area are still to be made and that the first steps to be taken will be to form a board representing all of the different parties and to send out geologists to select suitable areas. It is suggested that as yet it is impossible to say whether oil exists in commercial quantities, but the general idea is that oil may be found in the neighborhood of Mosul and along the Persian border. The fact that Mosul is regarded as one of the most promising areas introduces a complication, for the fate of the vilayet of Mosul is as yet uncertain. The frontier may yet be fixed in a manner favorable to Turkey. The Turkish Petroleum Co. has, however, issued a statement intimating that 'While it is true that the question of the Mosul frontier has yet to be settled, it may safely be assumed that, whatever the outcome, the droits acquis of the company in the Mosul area will be respected.' If the Mosul vilayet or any part thereof should eventually go to Turkey, the Turkish Petroleum will presumably have to take up negotiations as to this portion of its sphere at the point where they were previously dropped. In 1914 the company had received the promise of a concession."

Fig. 178
BRONZE HYDRAULIC
GATE VALVE
2000 lbs. W. S. P.

Bronze Hydraulic Valves

FOR HIGH WORKING PRESSURES

Fig. 177
BRONZE HYDRAULIC
CHECK VALVE
2000 lbs. W. S. P.

Fig. 175
BRONZE HYDRAULIC
GLOVE VALVE
2000 lbs. W. S. P.

Powell Valves

Especially for Oil Field and Refinery Service

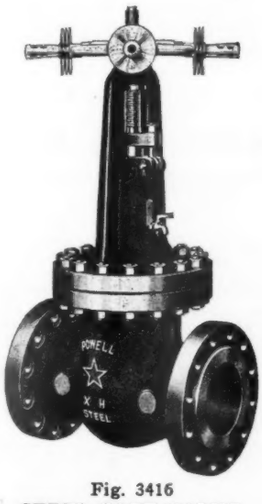


Fig. 3416
STEEL GATE VALVE
400 lbs. W. S. P.
750°F. Total temperature.

Cast Steel Valves

For Heavy Working Pressures and High Temperatures

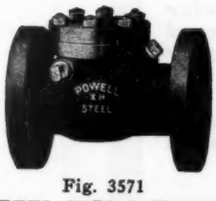


Fig. 3571
STEEL SWING CHECK
VALVE
250 lbs. W. S. P.
750°F. Total temperature.

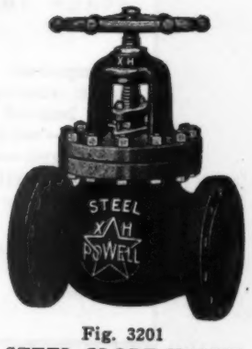


Fig. 3201
STEEL GLOBE VALVE
250 lbs. W. S. P.
750°F. Total temperature.

Descriptive Circulars Sent on Request

The Wm. Powell Company

CINCINNATI, OHIO, U. S. A.

Dealers with stocks in all principal oil districts

GRAVER BUILT

Graver Builds

Tanks
Welded
Riveted
RIOW
(Riveted, Inside & Outside Welded)
Structural Supports
Tower Tanks
Standpipes
Any Size Tanks
Erected Anywhere

Refinery Equipment

Stacks-Breechings

General Steel Plate Construction

Water Softeners
Hot Process
Cold Process
Zeolite
Household

Filters
Pressure

Purifying Systems for Swimming Pools

CASINGHEAD STORAGE

Horizontal tanks—shop erected—RIOW constructed [Riveted and Inside and Outside Welded] have passed the experimental stage for casinghead storage.

Compared with elevated tank storage they cost less per barrel to build and install—withstand greater pressure—can be delivered and installed more quickly and *can be moved.*

Why not send for a quotation for one unit or a battery?

GRAVER *Founded 1857* Corporation
EAST CHICAGO, INDIANA

NEW YORK Irving Cent. Term. | CHICAGO Steger Building | TULSA Atlas Life Bldg. | HOUSTON West Building

NATURAL-GAS GASOLINE STATISTICS IN 1923

(Continued from Page 62)

NATURAL-GAS GASOLINE PRODUCED IN UNITED STATES IN 1922-1923, BY STATES

State	No. of Operators Report'g*	No. of Plants	Raw (Unblended) Gasoline Produced: Thous. of Gals.	Value at Plant: Thous. of Dols.	Av. per Gallon (Cts.)	Estimated Quan. of Nat. Gas Treated: Millions Cu. Ft.	Av. Yield per M Cu. Ft. (Gals.)
1922—							
Oklahoma	103	267	189,404	24,914	13.2	94,800	2.0
Texas	24	56	95,405	12,115	12.7	51,243	1.9
California	31	77	67,120	11,868	17.7	61,995	1.1
West Virginia	59	151	56,796	9,771	17.2	163,139	.3
Louisiana	15	26	29,406	4,113	14.0	47,144	.6
Wyoming	4	5	19,967	2,251	11.3	6,344	3.1
Pennsylvania	136	195	18,518	3,145	17.0	51,329	.4
Ohio	25	41	8,600	1,301	15.1	37,137	.2
Illinois	32	78	7,760	1,182	15.2	3,231	2.4
Kentucky	6	8	5,205	926	17.8	18,123	.3
Arkansas	1	1	4,289	629	14.7	1,194	3.6
Kansas	6	8	2,856	435	15.2	8,188	.3
New York	4	4	506	61	12.1	1,272	.4
Total	*402	917	506,832	72,711	14.4	545,139	.9
1923—							
Oklahoma	103	279	270,249	23,012	8.5	136,563	2.0
Texas	48	100	177,765	14,752	8.3	113,733	1.6
California	67	119	173,329	16,564	9.6	211,409	.8
West Virginia	58	162	63,381	8,890	14.0	164,906	.4
Louisiana	25	35	40,720	3,484	8.6	87,944	.5
Wyoming	8	10	21,292	1,992	9.4	24,523	.9
Pennsylvania	127	196	19,132	2,560	13.4	55,238	.3
Arkansas	4	7	16,183	1,916	11.8	3,975	4.1
Ohio	25	44	10,035	1,446	14.4	39,805	.3
Kentucky	9	11	7,601	1,067	14.0	22,925	.3
Kansas	7	12	8,775	690	7.9	10,843	.8
Illinois	30	86	7,356	851	11.6	3,207	2.3
New York	5	5	408	44	10.8	640	.6
Total	*455	1,067	816,226	77,268	9.5	875,711	.9

*A producer operating in more than one State is counted only once.

NATURAL-GAS GASOLINE PRODUCED IN THE UNITED STATES IN 1922 AND 1923, BY METHODS OF MANUFACTURE

State	No. Plants Reported: Comp.	Oil Absorp.	Combination: Comp. and Oil Absorp	Charcoal	Raw (Unblended) Gasoline Produced (Thousands of Gallons): Comp.	Oil Absorp.	Combination: Comp. and Oil Absorp.	Charcoal	Drip
1922—									
Oklahoma	197	*62	*8	....	*137,712	*41,335	*9,688	....	669
Texas	34	*15	*7	....	*62,794	*11,810	*20,616	....	185
California	27	36	14	....	22,558	23,958	20,314	....	290
West Virginia	85	56	16	....	12,591	41,090	2,906	....	209
Louisiana	13	10	3	....	8,998	13,016	6,926	....	467
Wyoming	4	1	...	....	19,869	98	.....	....	...
Pennsylvania	169	27	...	....	9,116	9,345	.....	....	57
Ohio	29	12	...	....	1,334	7,353	.....	....	13
Illinois	78	...	...	....	7,752	.....	.....	....	8
Kentucky	5	3	...	....	561	4,644	.....	....	...
Arkansas	..	...	1	....	.....	.....	4,289	....	...
Kansas	5	3	...	....	909	1,928	.....	....	19
New York	3	1	...	....	281	225	.....	....	...
Total	648	*226	*43	†...	*284,475	*154,702	*64,738	†...	1,917
1923—									
Oklahoma	178	77	24	....	138,455	99,924	31,067	....	803
Texas	42	45	13	....	80,033	54,436	43,267	....	29
California	20	79	20	....	14,937	128,489	29,902	....	...
West Virginia	68	52	39	3	8,627	41,019	12,259	1,186	290
Louisiana	13	16	5	1	9,317	24,945	5,961	497	...
Wyoming	4	5	1	....	17,718	3,337	137	....	100
Pennsylvania	168	21	6	‡3	7,943	6,995	3,409	712	73
Arkansas	..	5	2	....	.....	5,579	10,510	....	94
Ohio	29	14	1	....	1,251	8,544	233	....	7
Kentucky	3	4	1	3	462	6,562	41	536	...
Kansas	5	8	...	....	4,459	4,301	.....	....	15
Illinois	86	...	...	....	7,355	.....	.....	....	1
New York	4	1	...	....	315	93	.....	....	...
Total	620	327	112	‡10	§90,872	384,224	136,787	2,931	1,413

*Revised figures.
†Included under oil absorption.
‡Two of the charcoal plants run in connection with others.

NATURAL-GAS GASOLINE TURNED INTO CRUDE PETROLEUM PIPE LINES IN 1923, BY STATES*

State—	Gallons	State—	Gallons
California	50,397,785	Texas	3,529,365
Illinois	26,430	West Virginia	25,124
Louisiana	3,048,871	Wyoming	1,837,529
Oklahoma	15,418,235		
Pennsylvania	251,611	Total	74,535,950

*Included in figures of production. Corresponding data for preceding years not available.

NATURAL-GAS GASOLINE PRODUCED IN THE UNITED STATES, 1911-1923, BY METHODS OF MANUFACTURE, IN THOUSANDS OF GALLONS

Year	Compression	Oil Absorp.	Combination: Comp. and Oil Absorp.	Charcoal	Drip
1911	7,426	.....	.....	.....	*.....
1912	12,081	.....	.....	.....	*.....
1913	24,061	*.....	.....	.....	*.....
1914	42,653	*.....	.....	.....	*.....
1915	65,365	*.....	.....	.....	*.....
1916	84,923	18,570	.....	.....	†.....
1917	168,867	49,017	.....	.....	†.....
1918	219,767	62,769	.....	.....	†.....
1919	261,158	90,377	‡.....	.....	†.....
1920	281,132	103,612	‡.....	.....	†.....
1921	331,867	118,067	‡.....	.....	†.....
1922	§284,475	§154,702	§ 64,738	†.....	1,917
1923	290,872	384,224	136,787	2,931	1,413

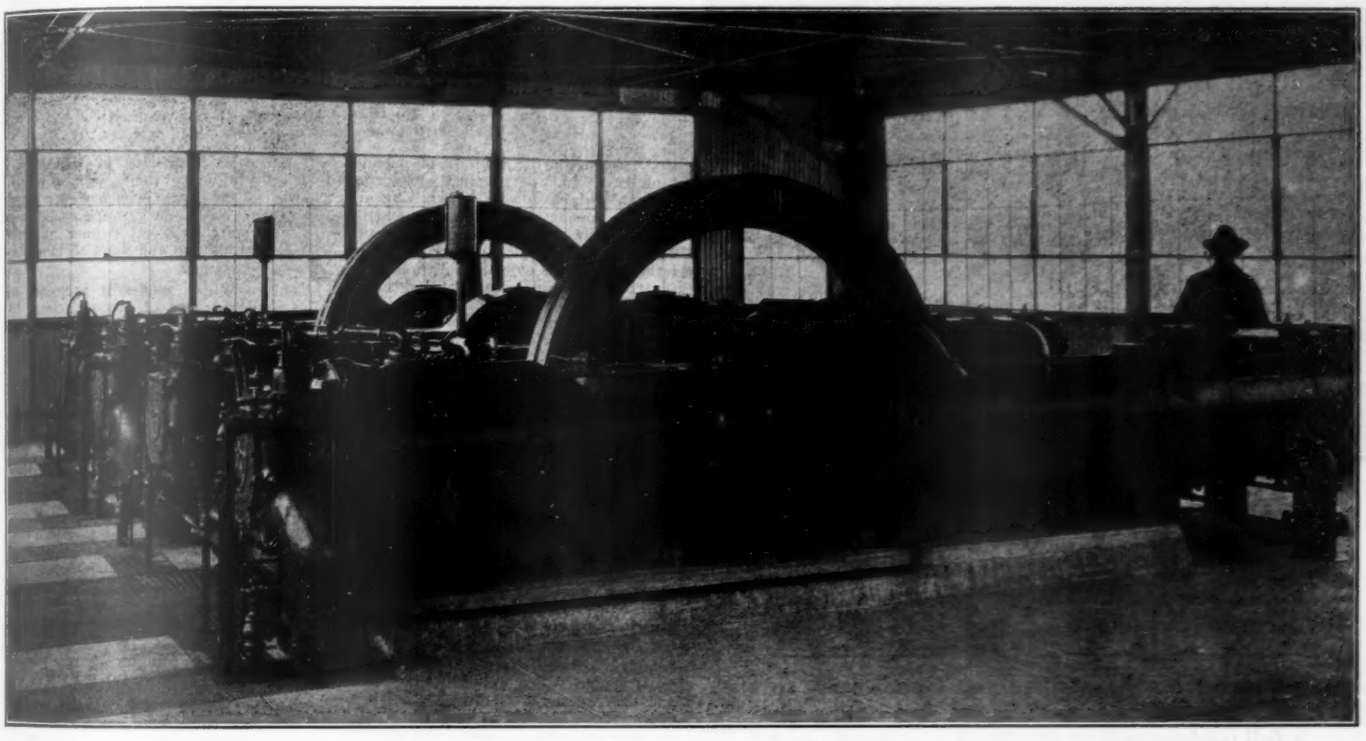
*Included under "Compression."
†Included under "Oil absorption."
‡Included under "Compression" and "Oil absorption."
§Revised figures.

NATURAL GAS PRODUCED AND CONSUMED AND PORTION TREATED FOR EXTRACTION OF NATURAL-GAS GASOLINE, 1911-1923

	Produced and Delivered to Consum'rs (Millions of Cu. Ft.)	Consumed (Mill'ns of Cu. Ft.)	Treated for Extraction of Gasoline (Mill'ns of Cu. Ft.)	Ratio (Percts.) of Nat. Gas Treat'd for Gasoline To Quan. Produced and Del'd Consumers	To Quan'ty. Consumed
1923—					
Arkansas	24,215	33,746	3,975	16	12
California	131,434	131,434	211,409	161	161
Illinois	4,049	4,049	3,207	79	79
Kansas	32,072	37,637	10,843	34	29
Kentucky†	11,953	21,232	22,925	192	108
Louisiana	112,031	111,434	87,944	78	79
New York	6,497	16,495	640	10	4
Ohio	53,812	120,920	39,805	74	33
Oklahoma	203,082	173,788	136,563	67	79
Pennsylvania	112,562	138,478	55,238	49	40
Texas*†	74,535	183,046	113,733	153	127
West Virginia§	203,867	88,527	164,906	81	186

WATTS-MILLER

THE MILLER IMPROVED GAS ENGINE COMPANY
SPRINGFIELD, OHIO



HIS EXPERIENCE WITH MILLER EQUIPMENT WAS PROOF ENOUGH FOR HIM

One of our old customers wired for delivery time on some of the Watts-Miller Opposed Type Gas Engine Driven Gas Compressors.

Our advice was that we could deliver one-half of the order at once, the balance in four weeks.

We are satisfied with your equipment, will wait for the balance to deliver when completed.

Reliability of service is what we want and we are sure of this with the Watts-Miller Units.

Our close inspection of these units in service convinces us that this new equipment is as near complete as men and material can make it.

HIGH CLASS EQUIPMENT WILL BE ALWAYS SOUGHT AFTER

It is only natural that large producers and users of equipment of this nature should be constantly on the lookout for the very best obtainable.

Shut downs are costly not only for replacements but also loss of production caused by these delays.

The quiet operation of this unit bespeaks an intimate knowledge of correct design as well as adequate equipment for putting it into effect.

You will be interested in these units because they will save you real cash and at the same time insure real service.

Wyoming	35,523	34,576	24,523	69	71
Others	2,503	12,473	.....	...	...
Total	1,008,135	‡1,008,135	875,711	87	87
1911	513,993		2,476	0.5	
1912	562,203		4,688	1	
1913	581,898		9,389	2	
1914	591,867		16,895	3	
1915	628,579		24,064	4	
1916	753,170		208,705	28	
1917	795,110		429,288	54	
1918	721,001		449,109	62	
1919	745,916		480,404	64	
1920	798,210		496,431	62	
1921	662,052		465,097	70	
1922	762,544		545,139	71	

*Large quantities of gas both before and after the extraction of gasoline were blown in the air or unaccounted for.

†Quantities of natural gas were piped from other States, treated for gasoline extraction, and residue gas returned to State in which produced.

‡Includes 9,000,000 cubic feet consumed in Mexico.

§Natural gas was treated for gasoline extraction and consumed in other States.

GOODYEAR MEANS GOOD WEAR

You will find your drilling and pumping are done more efficiently and economically when you equip with Goodyear Belts. These belts are built to give powerful and trouble-free service, under the most exacting conditions of oilfield duty

Goodyear Mechanical Rubber Goods serve so well because they are designed and built with a full understanding of oilfield conditions and refinery duty.

They stand up to the job, they do their work efficiently and economically, and they wear a long, long time.

For service records, or for any other information about them, write to Goodyear, Akron, Ohio, or Los Angeles, California.

TRANSMISSION BELTS
Goodyear, Klingtite

HOSE
Air, Water, Steam, Gasoline, Fire and Mill

OIL SUCTION or DISCHARGE HOSE

ROTARY HOSE

PACKING
Asbestos and Rubber Sheet for both field and refinery service

PUMP VALVES

SLUSH PUMP SLEEVES

SWAB RUBBERS

GOODYEAR

PAINT CHOICE VITAL TO PREVENT CORROSION ON TANK CAR INTERIOR

By Gordon Saunders
Chemist, Cook Paint & Varnish Co.

Corrosion on the interior of gasoline tank cars and a practical protection against it is a subject of growing importance among the traffic and gasoline sales departments of many oil companies. The presence of scale and rust in the interior of tanks is objectionable because of the trouble it causes in jamming certain types of outlet valves, because of its mere presence in gasoline, and because it is harmful to the carefully prepared arguments on purity and quality advanced by the oil companies' sales departments.

The choosing of a type of protective coating which is most practical as to application and will still give a reasonable amount of service is a problem. For discussion it may be best to list the types of plant which can be used and then decide upon the best by process of elimination. The types are:

1—Primer and Enamel—built on oil—China wood—gum base.

2—Pigments ground in spirit lac or liquid shellac.

3—Nitrocellulose films — commonly known as lacquers.

Under the first head—a primer of good tenacity, followed by an extremely waterproof enamel which would dry very hard and elastic, would simplify the work of application. It could be brushed on after the interior surface had been cleaned thoroughly and should give fair service although continued jolting of gasoline finally would soften and thereby wreck the best of these types of films. With paints of this sort the hardness (also elasticity) of the film is the important thing, and if baking were possible, could be counted as a successful method. Baking, however, would be impractical on the interior of gasoline tank cars.

Pigments ground in spirit lac or shellac, lithopone for instance, ground in spirit lac or liquid shellac plus a small amount of alcohol gums would be absolutely inert to gasoline. By that is meant that gasoline never would soften nor affect such films. However, shellac and spirit lac films become more and more brittle until flaking and checking would occur because of contraction and expansion of the metal. These films also could be brushed on. The odor in the tank car would be objectionable to the painter—but not prohibitive at all.

Nitrocellulose films commonly known as lacquers—such films using a higher percentage of plastic agents thereby being more elastic than the ordinary automobile lacquers—sprayed on over the bare metal in the colors or in the clear—would be absolutely unaffected by the gasoline and would give by far the best service of anything we know. Gasoline and mineral spirits are absolutely foreign to its makeup and thereby have no effect whatever upon a lacquer film.

Trying to dissolve a properly constructed lacquer in gasoline could be compared to dissolving ordinary windod glass in water. On automobiles and most other work a primer or first coater made on a vegetable oil baes is applied to the metal, over which are sprayed several coats of lacquer. Using such a primer on the interior of gasoline tank cars would be wrong, however, because a few small spots in the tank due to slightly imperfect cleaning, workmen walking on the bottom of the car, or whatnot—are bound to be uncovered and gasoline would soak in and soften the oil primer and the lacquer would pop and flake off in a relatively short time.

This condition makes it necessary to use a special type of lacquer, clean the inside of the tank carefully and thoroughly, and then spray on two or three coats. The lacquer would dry in about 30 minutes and would be more difficult to apply than shellac because of the rapidity of the evaporation of the solvents. However, we believe that a method using respirator, ventilating air hose and goggles can be devised so that this material may be sprayed on without much trouble, and there is no doubt that such a coating if properly applied, would be most successful in counteracting the corrosion constantly taking place on the interior of gasoline tank cars, and by choosing different colors the sales departments would have additional pep to add to their quality talks on various grades of gasoline.

KANSAS CITY GAS SALE TO DOHERTY APPROVED

JEFFERSON CITY, Mo., April 18.—The Public Service Commission has consented formally to the sale of the Kansas City Gas Co. to the Cities Service Power & Light Co., a Henry L. Doherty corporation. The commission entered an order permitting the Cities Service Power & Light Co. to acquire more than 10 per cent of the capital stock of the gas company.

This action ends a fight begun by Charles W. Dana and a group of stockholders in the gas company to prevent the Henry L. Doherty interests from obtaining control. Dana subsequently withdrew his opposition.

The order, which becomes effective April 24, contains this proviso:

"Cash paid for said stock shall not be binding on the commission as the value of the property, or any part thereof, for ratemaking or for the issuance of stocks, bonds or other securities."

This is a mere reiteration of the prevailing rule with the Public Service Commission that the physical valuation, not the value of its stocks or other securities, shall be the only basis for making rates.

The order recites that Doherty has purchased a majority of the common stock in the gas company at $125 a share and about 10 per cent of the preferred stock at $100 a share. The commission now permits his concern, the Cities Service Power and Light Co., to acquire more of all classes of stock in the company, in excess of the present legal limitation of stock that may be held by a foreign corporation in a Missouri concern.

At a hearing at the city hall in Kansas City March 25 no one appeared to oppose the Doherty interest acquiring more of the gas company stock, the order sets forth.

Unusually DEPENDABLE

LUNKENHEIMER "CLIP" GATE VALVES

The choice of thousands of discriminating valve users for steam, oil, water, gas or air service, where pressure does not exceed 100 pounds.

Capable of withstanding not only the pressure and temperature for which they are recommended, but also the stresses caused by expansion, contraction, vibration, weight and settling of the pipe, and other severe service conditions.

Simplicity of design, sturdy construction, easy accessibility, and renewability of all parts, are factors which contribute to the wide popularity of Lunkenheimer "Clip" Gate Valves.

Regularly furnished in Iron Body Bronze Mounted pattern; but also procurable with lever for Quick Operating purposes, and in the "All-Iron" pattern for handling fluids which attack alloys of copper.

Detailed description in booklet 505; a copy will be sent on request.

THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U. S. A.
NEW YORK CHICAGO BOSTON LONDON
EXPORT DEPT. 129-135 LAFAYETTE ST., NEW YORK

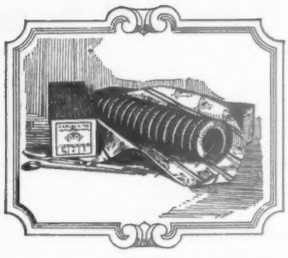
EASY TO DISASSEMBLE EASY TO REASSEMBLE

"America's Best since 1862"

5-23-91

GARLOCK

Quality Controlled



QUALITY CONTROLLED GARLOCK PACKINGS are manufactured in our own factories "from the Crude to your Satisfaction." All raw materials are tested in our laboratories and have to meet GARLOCK standards before acceptance. The building of GARLOCK products is the work of trained craftsmen. Each article is thoroughly inspected before shipment.

THE GARLOCK PACKING COMPANY
Manufacturers of GARLOCK PACKINGS
PALMYRA, N.Y.
Sales Offices in all Principal Industrial Centers

The Standard Packing of the World

OIL FIELD PRACTICES HAVE KEPT PACE WITH NEEDS OF THE INDUSTRY

By L. M. Fanning

The competitive system of oil exploitation in this country has brought the oil out of the ground when oil was needed. No one can say with certainty that this could have been accomplished by any other system.

Spurred by increased uses and demand for petroleum, private initiative has found a way to meet every demand made upon it. To accomplish this, great advances have been made in the practical methods and in the science of finding oil. Such achievements must be recognized in their full relationship to supply. That is, not only have they made possible the finding of enough oil to meet current needs but they make possible the future finding of petroleum which, had these advances not been made, could not have been rightfully considered of reserve character. In fact, we are now able to list as available resources great quantities of oil the existence of which some 10 years ago was undreamed of. Therefore, the practical and scientific improvements made by the petroleum industry are momentous contributions to the conservation of petroleum resources.

Notable advances have been made in the science of geology. Haphazard oil finding—the use of the peach twig, the divining rod and the overworked hunch—has been definitely consigned to the romantic past. Recognition of the geologist, of his importance to the petroleum industry, has occurred only comparatively recently. It is pointed out that 15 years ago there were not more than a score of geologists, outside of the members of the Federal and State surveys, who were engaged chiefly on oil problems; today there are considerably more than a thousand. Then, the companies having active geological departments could have been counted almost on one's fingers; a company with a geological department was the exception rather than the rule. Today this position is reversed, and it is the company without the geological department which is the exception.

Geologists' Work Necessary

The reason why theoretical geology was slow to take hold in connection with petroleum is that as the production business grew specialists who had gained their experience from years of practical work were able to meet the requirements by means of applying their knowledge of the characteristics and peculiarities of known oil deposits. However, as the trained geologist came into the field and, with his general knowledge of rock structures, specialized in oil and gas formation, the industry found his work of decided merit and necessity.

The foundation for the more general acceptance of the geologist by the oil industry which prevails today, was undoubtedly laid by the series of intensive studies made in the early 1900's by the United States Geological Survey, according to an authority on the subject. From the study of the reports covering these examinations, a fair minded investigator could not escape the conclusion that the geologist could profitably be employed in the task of searching for new oil and gas prospects. About 1907 many of the men who had made these early reports for the Federal survey established themselves as consulting geologists and from this period until 1913-1914 geology won its way rapidly into the industry. Since 1914, the employment of geologists has been fairly general.

It is a recognized fact in the petroleum industry that geologists have directly contributed to the great flood of new oil production opened up in the past few years. Involved in this contribution are the changes and improvements in the technique of the geologist. During the 10 or a dozen years that he has been actively engaged in the petroleum business, the geologist has improved to a remarkable degree his method of attacking the prospecting problem.

Improving Methods

It is not meant to convey the impression that application of the science of geology has made the finding of oil an easy matter. Actually, petroleum discovery becomes a more difficult problem each year if for no other reason than that, assuming that petroleum is a diminishing asset, as the number of discovered pools increases, the number of pools yet to be discovered decreases. This, of course, is outside of the fundamental geological problems involved in petroleum occurrence.

The petroleum industry through its geological departments, and geologists individually, are constantly engaged in improving methods to meet this situation. A description of the improvements made in the last decade reveals that the geologist today is contributing to the finding of new pools, the existence of which would not have been even suspected on the basis of surveys by older methods.

Brief mention may be made of changes in the geologist's methods in the Mid-Continent as a typical oil area. First, it is stated, we find that in the beginning the geologist's ability to map an anticline was confined general to anticlines where the dip of the rocks could be seen by the eye and perhaps even measured with a pocket clinometer. The next step was to replace this crude method by that of running out and determining the elevations of rock outcrops by plane table. This method, still of value today, was shortly supplemented by sub-surface studies. The elevations of certain recognizable beds were determined from well logs, structure contour maps were made and as a result of such work oil pools were found which had not been indicated by other methods. Today, hundreds of thousands of dollars are being spent in digging for geologic structures with core drills in areas where rocks are not exposed to the surface.

These changes are particularly pertinent in connection with the relation of improved methods to conservation of petroleum. As now organized and with the problems generally recognized, it is reasonable to assume that even greater advances will be made in the immediate future than have been made in the few years that geological science has been applied to oil discovery.

Changes in Practices

It is interesting to outline some of the changes in oil field practices and improvements in methods that have had such significant bearing on the available petroleum resources of this country.

Back in the '80s an eminent petroleum geologist and engineer stated as evidence "of a certain decline in a great industry" that it was to be noted that no two oil sands, one immediately above the other, have been great producers over the same extended area.

As drilling of wells increased in number and widened in the territory being tested, the industry soon discovered there were prolific pay horizons at greater depths and covering as great or greater area than those already discovered. In practically all districts oil sands are struck at different depths in the same locality, and, in fact, the greatest single factor in the development of increased production in the last eight years has been the drilling for oil to greater depths. This has, of course, involved serious problems which have been solved by the force of necessity.

Oil wells drilled in the United States today go to an average depth of about 3,000 feet. Eight years ago drilling for oil as deep as 3,000 feet was a rarity and was considered a prohibitively expensive adventure in addition to presenting practical problems of operation.

Twenty years ago oil was struck at an average depth of 1,500 feet. A simple illustration of how the driller, aided by the geologist, seeks and finds an oil sand is afforded in the case of the development of Bartlesville sand production in Oklahoma.

Oil was first discovered in this sand in

At the Landreth Gasoline Co.

In its plant at Breckenridge, Texas, the above Gasoline Company has installed four 16″ stroke Ingersoll-Rand Type XRB Gasoline Extraction Compressors. There is also installed in this plant an I-R Type XPV Expander, shown in the insert.

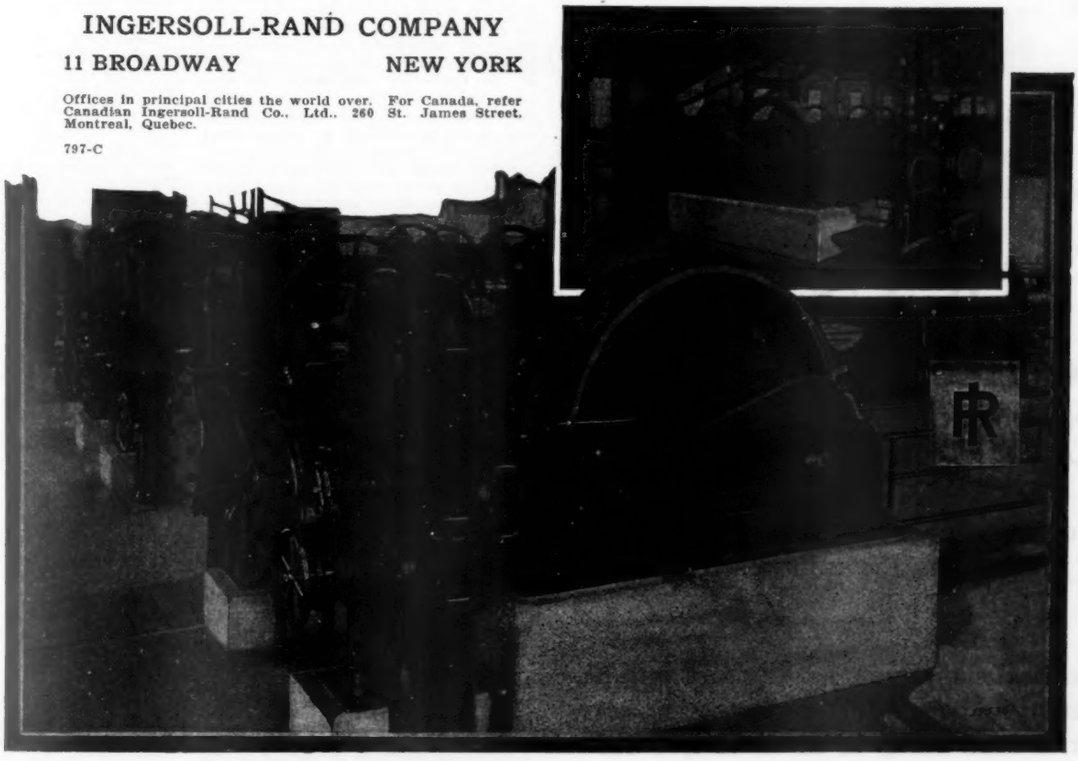
These machines are rendering excellent service. In the months of February, March and April, 1924, the operating records of this Company showed that the compressors were in service 99.9% of the time.

This installation at the Landreth Gasoline Company is another example of the excellent performance records of Ingersoll-Rand Compressors used for the extraction of natural gasoline.

INGERSOLL-RAND COMPANY
11 BROADWAY NEW YORK

Offices in principal cities the world over. For Canada, refer Canadian Ingersoll-Rand Co., Ltd., 260 St. James Street, Montreal, Quebec.

797-C



Ingersoll-Rand

These Pumps are the choice

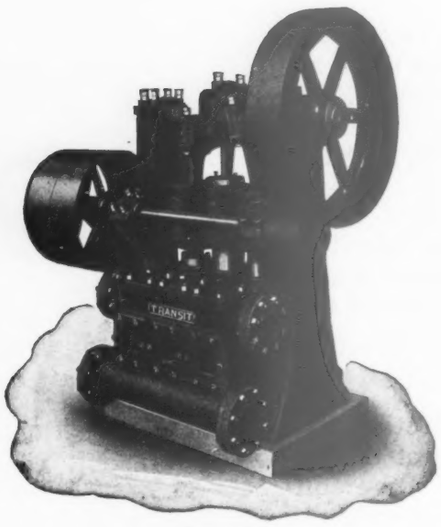


Fig. 1177

5 x 6" Vertical Triplex, Single-Acting Power Pump. Will pump 160 Barrels per hour against 200 lbs. line pressure. For lubes or gasoline, or anything between.

OF painstaking, intelligent engineers who pride themselves on their clean and dependable engine and pump rooms.

A TRANSIT Vertical Triplex POWER PUMP

is absolutely reliable, is neat and trim in appearance, and covers the minimum of floor space.

If you want to make your engine and pump rooms spic and span, and the utmost in reliability, the first thing to do is to get our Bulletin 302-A on these pumps.

NATIONAL TRANSIT PUMP & MACHINE CO.

OIL CITY, PA.

District Offices: New York Pittsburgh Philadelphia Cleveland Tulsa Denver Houston

paying quantities less than 400 feet from the surface. Less than 300 feet of light weight casing was necessary to drill a well in that territory. A well could be completed for less than $1,000. The same sand may be traced dipping gradually under the earth's surface over 100 miles from where it was first discovered and still productive at a depth of 3,400 feet and over. Wells at that depth cost upwards of $50,000 to drill and equip for pumping.

Deep Well Pumping

When large gusher oil production was developed in North Central Texas in the last days of the war and in 1919 at depths exceeding 3,000 feet, there were many in the petroleum industry who predicted that these deep wells could not be pumped after they ceased to flow naturally. Much money in experimentation was spent and the practical and scientific forces of the industry succeeded in solving the problems involved and pumping has been general in that territory.

During 1923 a tremendous new gusher production was developed in the Los Angeles Basin of California from oil sands lying at depths averaging over 4,000 feet, with many of the wells producing at over 5,000 feet. The same predictions as to pumping these wells at such depths were heard as in the case of North Central Texas, the difficulties in California being recognized as even greater because of the loose character of the oil sand which makes ordinary pumping a considerable problem. In fact, sandy wells with the presence of water have often given so much pumping trouble that many of them are temporarily abandoned.

The entire industry in California engaged in solving the problem of pumping these deep wells. It speaks well for the ability of the industry to solve such problems to note that the present time most of the California deep wells are now pumping. Practical men in the field and theoretical men in the office recognize how many possibilities of improvement the intricate problem of deep well pumping still holds, and they are applying themselves to the task with every prospect that the efforts will be wholly successful. A man prominent in this work says:

"The experience obtained in the deep wells of the Los Angeles Basin with improvements on pumping equipment, give hope that a step in the right direction has been taken, and that the pumping of deep wells around the 5,000-foot mark will soon become a matter of routine."

Recently a California oil company which is devoting much time and expense to this problem reported the deepest producing oil well in the world. Initial tests with pump in tubing set at 4,500 feet showed 110 bbls. of oil in the first 24 hours. The first oil sand was encountered at 6,600 feet. Tubing was being lowered to the bottom of the hole and a longer stroke pump was being installed, when the yield was expected to be 250 bbls. daily.

Improvements in pumping are only a part of the story of more efficient methods being adopted by the oil industry to meet old conditions and of new methods being devised to meet new problems. Cementing of wells against water intrusion has developed into a science on its own account.

The petroleum industry has grown so rapidly and has been so pressed by the urgent demand for its products that standardization of oil field metods and equipment have been far from accomplished. Moreover, the industry is young, and conditions of oil finding have changed so drastically as to operate against desired uniformity. However, within the last year the first step in complete standardization of oil field methods and equipment has been accomplished under the auspices of the American Petroleum Institute. The industry is cooperating to bring about efficiency and saving in oil field operations through a standardization program which has epochal economic possibilities, comparable to standardization results in the automotive industry.

WESTERN PETROLEUM REFINERS' COMMITTEES

CHICAGO, April 18. — Committees were appointed and plans made for the year's work of the Western Petroleum Refiners' Association at a meeting of the directors of the organization here. The following committees were appointed:

Manufacturers committee: C. L. Henderson, chairman, Vickers Petroleum Co., Wichita, Kans.; F. B. Koontz, Mid-Continent Petroleum Co., Tulsa, Okla.; H. W. Camp, Empire Refineries, Inc., Tulsa, Okla.; Walter Miller, Marland Refining Co., Ponca City, Okla.; Dr. F. W. L. Tydeman, Roxana Petroleum Corp., Wood River, Ill.; W. E. Moody, Shaffer Oil & Refining Co., Cushing, Okla.; F. E. Holsten, Barnsdall Refining Co., Tulsa, Okla.; L. F. Bayar, Tidal Refining Co., Tulsa, Okla.; H. T. Ashton, Lubrite Refining Co., St. Louis, Mo.; W. E. Perdew, Derby Oil Co., Wichita, Kans.; W. F. Simms, Panhandle Refining Co., Wichita Falls, Texas.

Traffic committee: R. R. Irwin, chairman, White Eagle Oil & Refining Co., Kansas City, Mo.; H. W. Roe, Mid-Continent Petroleum Co., Tulsa Okla.; A. C. Holmes, Empire Refineries, Inc., Tulsa, Okla.; H. C. Mulroy, Marland Refining Co., Ponca City, Okla.; W. M. Powers, Lubrite Refining Co., St. Louis, Mo.; A. F. Winn, Skelly Oil Co., Eldorado, Kans.; B. J. Burchett, Shaffer Oil & Refining Co., Chicago, Ill.; Earl Smith, Oil State Refining Co., Enid Okla.; W. E. Campbell, Panhandle Refining Co., Wichita Falls, Texas.

Finance committee: P. M. Miskell, chairman, Empire Refineries, Inc., Tulsa, Okla.; Geo. D. Locke, Barnsdall Refining Co., Chicago, Ill.; Roy B. Jones, Panhandle Refining Co., Wichita Falls, Texas.

Membership committee. J. H. Miller, chairman, Miller Petroleum Co., Kansas City, Mo.; E. W. Goebel, Kansas City Refining Co., Kansas City, Mo.; J. L. Gray, Shaffer Oil & Refining Co., Tulsa, Okla.; N. H. Martin, Texhoma Oil & Refining Co., Wichita Falls, Texas; C. L. Mayhall, Imperial Refining Co., Tulsa, Okla.; A. E. Landsittel, Globe Oil & Refining Co., Tulsa, Okla.; W. K. Campbell, Western Oil Corp., Tulsa, Okla.

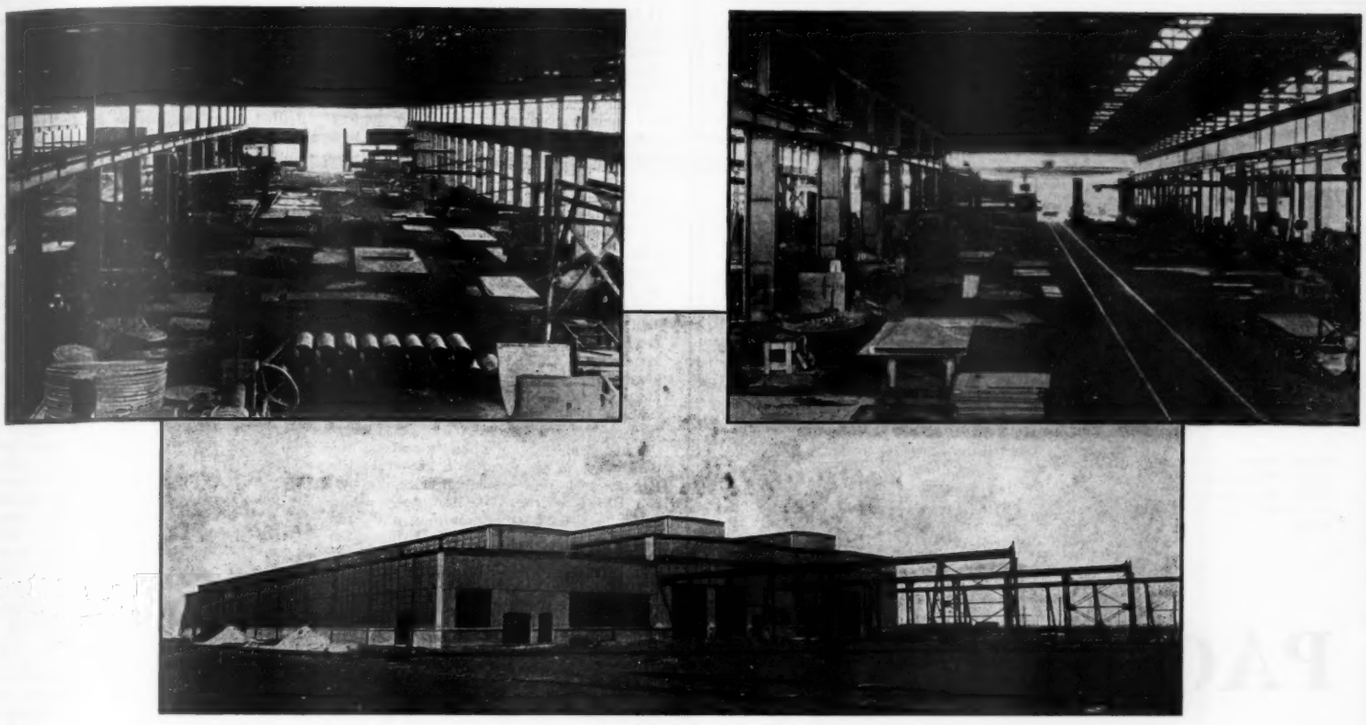
EASTERN PIPE LINE REPORT FOR MARCH

Receipts of crude petroleum from the wells by the pipe lines of the eastern division during the month of March amounted to 1,877,818 bbls., which is a daily average of 60,575 bbls. This is an increase of 180,855 bbls. in the total and a decrease of 31 bbls. in the daily average due to the difference in the length of the two months. The daily average is 8,146 bbls. less than it was for the corresponding month of last year.

The deliveries of crude petroleum during the month of March by the pipe lines of the eastern division amounted to 4,792,329 bbls., a daily average of 154,591 bbls. This is an increase of 288,155 bbls. in the total and a decrease of 6,272 bbls. in the daily average compared with the previous month. It is an increase in the daily average of 7,493 bbls. compared with the figures for March, 1924.

During March the runs from the Illinois Field by the Tide Water Pipe Co. and the Illinois Pipe Line Co. amounted to 754,335 bbls., the daily average being 24,333 bbls. This is an increase in the total of 117,701 bbls. in the total and an increase of 1,596 bbls. in the daily average, compared with the February figures. It is also an increase in the total of 143,047 bbls. compared with the aggregate for March, 1924. Deliveries of oil by these two pipe lines during March aggregated 611,348 bbls., a daily average of 19,720 bbls. This is an increase of 96,686 bbls. in the total and a gain of 1,340 bbls. in the daily average compared with February. It is an increase of 241,805 bbls. in the total compared with March, 1924.

The amount of crude oil held in storage by the pipe lines of the eastern divi-



This project, designed, built and equipped by Austin, comprises three 70-foot spans housing shops for construction of stills and storage tanks, pipe shop, blacksmith and general machine shops.

Austin Building Service for the Oil Industry

DURING the years that Austin has been serving the Oil Industry, Austin buildings have been constructed to house equipment in every branch of the industry.

Complete refineries, compressor buildings, pump houses, engine houses, tank car shops, warehouses, garage buildings, filling stations, and field shop buildings have been designed and built by Austin. Austin service includes buildings furnished complete to be erected by the purchaser.

Permanent, weather-tight buildings, of structural steel construction will be furnished to accommodate traveling cranes or monorail systems if desired.

The Austin Method of building, with ample stocks of necessary building material, insure speed in the construction of your project anywhere.

Material stocks close at hand insure the same speed where the purchaser is to do the erecting. Orders placed promptly often means that materials will be delivered before foundations are ready.

Wire, phone, or mail the coupon to the nearest Austin office for information on prices and deliveries.

THE AUSTIN COMPANY, *Cleveland*

Engineers and Builders

THE AUSTIN COMPANY OF TEXAS: DALLAS, 627 LINZ BLDG.

NEW YORK	217 Broadway	CHICAGO	1300 Burnham Bldg.
CLEVELAND	16112 Euclid Ave.	DETROIT	2201 First Nat. Bank Bldg.
PITTSBURGH	493 Union Trust Bldg.	PHILADELPHIA	1220 Jefferson Bldg.
ST. LOUIS	1794 Arcade Bldg.	SEATTLE	880 Dexter Horton Bldg.
BIRMINGHAM	510 American Trust Bldg.	PORTLAND	516 Porter Bldg.
		KANSAS CITY	238 Railway Exchange Bldg.

THE AUSTIN COMPANY OF CALIFORNIA:
Los Angeles, 777 E. Washington St.
San Francisco, 244 Kearny St.

AUSTIN

ENGINEERING BUILDING EQUIPMENT

THE AUSTIN COMPANY
Cleveland

☐ We are interested in the erection of

..... data .....

.....

☐ Please send us your literature pertaining to Oil Building Construction.

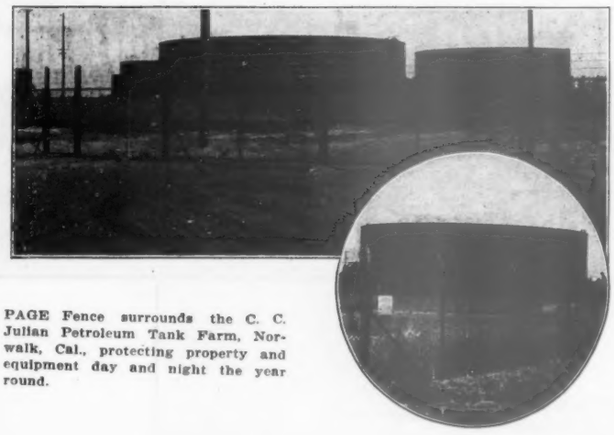
Firm .....

Individual .....

Address .....

O.&G.J.—4-25

Why You Should Specify



PAGE Fence surrounds the C. C. Julian Petroleum Tank Farm, Norwalk, Cal., protecting property and equipment day and night the year round.

PAGE PROTECTION FENCE

1. *Flat-woven Page Fabric* will not sag or overstretch when the fence is erected—a distinctive feature with PAGE Wire-Link.

2. *Uniform wire* of high grade steel or rust-resistant ARMCO Ingot Iron.

3. *Super-Heavy Zinc Coat* applied *after* weaving—approximately *5 times heavier* than that on ordinary galvanized wire.

4. *Yard deep posts* set 3 full feet in concrete footings: Corner and gate posts 3½ to 4 ft. deep.

5. *All weld gates*—extra heavy construction—cannot sag.

6. Malleable fittings—no brittle castings. Barbed wire arms of genuine ARMCO Ingot Iron.

—and last but not least, an experienced fence organization in almost every large industrial center, with complete stocks of Page Fence products and trained crews to insure correct installation.

Write for name of Distributor nearest you, and for the illustrated Page Fence Book, giving valuable information on property protection. No obligation—address

PAGE FENCE & WIRE PRODUCTS ASS'N.

215 N. Michigan Ave. Chicago, Ill.

Distributing wire-link products made by the Page Steel & Wire Co., Bridgeport, Conn. An associate company of the American Chain Co., Bridgport, Conn.

PAGE PROTECTION FENCE

District Offices

San Francisco Chicago Pittsburgh New York

sion at the close of March amounted to 11,158,297 bbls., a decrease of 34,627 bbls. in the daily average. This is the smallest figure for the amount of oil in storage in these lines since April, 1924. The amount of Pennsylvania oil held decreased 98,930 bbls.; Lima increased 38,934 bbls.; Kentucky decreased 54,923 bbls.; Mid-Continent increased 57,916 bbls. and Illinois gained 22,376 bbls.

EASTERN FIELDS

(Continued from Page 50)

doned. In Liberty district, Marshall County, the same company's second test on the Howard heirs' farm is a 10-bbl. pumper in the Gordon sand. In Smithfield district, Roane County, W. B. Heeter's long delayed test on the L. J. Meadows farm is dry in all sands and abandoned. In Washington district, the Hope Natural Gas Co. has a gasser in the Big Injun sand on the A. D. Adams farm. In Grant district, Doddridge County, the same company's test on the Stephen Stuttler farm is a gasser in the Big Injun sand. In Greenbrier district, the Raccoon No. 5 on the John Kelly farm has been put to pumping and good for 10 bbls. a day in the Big Injun sand.

How Deep Tests Are Progressing

Near Terra Alta, Portland district, Prenton County, the Hope Natural Gas Co. has the tools stuck in the hole at a depth of 4,050 feet and cleaning out preparatory to fishing them out. Despite the precautions taken, many delays have occurred at this well.

In Union district, Harrison County, the Reserve Gas Co. is drilling at 2,711 feet at its deep test on the Chapman Smith farm. They are making fairly good progress, and, barring accidents, will be drilled as deep as it is physically possible. They are making satisfactory progress at this time.

On Chestnut Ridge, near Ligonier, Westmoreland County, Pennsylvania, the Peoples Gas Co. is drilling out the bailer lost in its second deep test on the Booth-Flinn property. They have recovered about half of the bailer and are now spearing around the remainder and expect to take hold and lift it out. They were down 7,670 feet when the bailer was lost.

Tests Drilling and Starting

In Marshall County, West Virginia, there is quite a little test work under way and starting. In Liberty district, the Manufacturers Light & Heat Co. is building rigs on the P. & I. P. Chambers and S. B. Higgins farms. In the same district, the Waynesburg Oil & Gas Co. has suspended drilling at 2,446 feet on the Alfred McCluskey farm. The same company has made a location on the A. Smith farm. In Union district, the U. S. Stamping Co. has made another location on the J. V. McCluskey farm. In the same district, the Hope Natural Gas Co. has part of the rig material at a location on the A. E. Kemp farm. In Meade district, the same company has a rig up on the L. W. Richmond farm. In Liberty district, the Lynn Camp Oil & Gas Co. is rigging up on the Thomas Blake farm.

In Battelle district, Monongalia County, the Manufacturers Light & Heat Co. has made the location for a second test on the Hannah Prise farm. In Fairmont district, Marion County, the Owens Bottle & Machine Co. is due in the sand at a test on the C. T. Brownlee farm. In Sardis district, Harrison County, Garrett & Lyons are building a rig on the M. A. Dennison heirs' farm.

In Walker district, Wood County, Rosroe Richardson and others have moved in a drilling machine and are starting a test on the Stephen Hacket farm at Pleasant Hill. In DeKalb district, Gilmer County, James E. Tierney has the rig completed for another test on his own farm. In Ellsworth district, Tyler County, Albert Neely has the rig completed for a test on the D. H. Tolman farm. A. J. Karl has a rig up on the J. J. Martin farm. In Grant district, Pleasants County, the Dresser Oil Co. has started to drill No. 8 on the R. J. & R. N. Corbett farm.

In Curry district, Cabell County, the United Fuel Gas Co. is starting a test on the James McCallister farm. In the same district, the same company is due in the sand at a test on the Bruant-Johnson farm. In Grant district, Cabell County, C. O. Nixon & Co. have drilled their test on the F. J. Templeton farm to a total depth of 4,780 feet and shut down to cement through a cave. In McComas district, the Star Petroleum Co. has moved the rig and drilling a new hole on the Walter Swann farm. In Logan district, Logan County, the South Penn Oil Co. is fishing at No. 8 on the Yawkey-Freeman tract. The rigs for Nos. 12 and 13 on the same property have been completed. In the same district, the same company has shut down to cement a cave at a depth of 780 feet, on the Guyan Mercantile Co.'s property.

In DeKalb district, Gilmer County, the Hope Natural Gas Co. is rigging up to drill a test on the M. O. Burwell farm. In Center district, the same company is building a rig on the A. B. Meadows farm. The Philadelphia Co. has made location on the G. W. Miller and H. H. Habey farms. J. N. Stephens has rig material at a location on the P. A. Beall farm. In Grant district, Ritchie County, John Leeton & Co. are building a rig on the C. Lowther farm. In Union district, the Hope Natural Gas Co. is rigging up on the John M. Summers farm. In Murphy district, the same company is drilling a test on the Frank Douglass farm. E. E. Pope has started to drill No. 7 on the M. S. Gambrill farm. In Greenbrier district, Doddridge County, the Hope Construction & Refining Co. is building a rig on the Bridget Conley farm. In New Milton district, the same company has rig material at a location on the W. H. H. Douglass farm. In Freeman's Creek district, Lewis County, the Pittsburgh & West Virginia Gas Co. has made a location on the Moses T. Law farm. In the same district, the Reserve Gas Co. is still fishing at a test on the A. H. Hughes farm at 3,250 feet. In Center district, Wetzel County, the Cook Petroleum Co. is rigging up at a second test on the O. E. Morgan farm.

Southwest Pennsylvania

In Richhill Township, Greene County, Pennsylvania, the Headley Oil & Gas Co.'s test on the Elizabeth Rayle farm is through the Gordon sand and dry. In Whitely Township, the Peoples Gas Co.'s test on the W. P. & N. Rinehart farm is a light gasser in the Bayard sand.

In Robinson Township, Allegheny County, M. Clever is due in the sand at a second test on his own farm. In Upper Dunkard and Perry Townships, Green County, the Carnegie Natural Gas Co. has rigs up on the G. W. Vance and John Lemley farms. In Perry Township, the Kennedy-Brock Oil & Gas Co. has a rig up on the S. H. Lemley farm. In Greene Township, the Philadelphia Oil Co. has a rig completed on the R. M. Miner farm. In Perry Township, the Moore-Tex Oil & Gas Co. is drilling a second test on the T. J. Patterson farm. On Shannon's Run, Perry Township, Green County, the Carnegie Natural Gas Co. has now drilled its test on the Lloyd Cassidy farm through the Bayard sand and dry. In Richhill Township, Greene County, the Manufacturers Light & Heat Co. has completed a test on the Charles Behm farm good for 5 bbls. a day in the Gordon sand.

Had an Odd Experience

In Perry Township, Greene County, Pennsylvania, the Carnegie Natural Gas Co. had an unusual experience at its test on the Lee Wade farm. When the well was drilled into the top of the Big Injun sand a gas pressure was developed and showed a rock pressure of 500 pounds with a gas capacity estimated at 6,000,000 feet a day. A 10-inch line was rushed to the well and turned in. Within 24 hours the gas had disappeared and they decided to drill the well deeper and developed a lower pay and the well is producing 20 bbls. a day. The surprise is that the well showed for so large a gasser and then quit in so short a time.

(Continued on Page 144)

KJ
Saddle Gate Valves for PIPE LINE SERVICE
Saddle your pipe line valve work onto the shoulders of this husky valve. It's a saddle gate valve of simple yet durable construction that operates easily and surely, opening to the left with a rising spindle. It can be cleaned and repaired when necessary without loss of time by simply removing the bonnet. Available in sizes ½" to 6" in all iron or iron body, brass mounted, suitable for working pressures up to 125 lbs.
Additional information and prices on request.
Power Plant Piping, Coils and Headers of all kinds made at our ETNA PLANT Sharpsburg, Pa.
Write for Booklet
THE KELLY & JONES CO.
WORKS - GREENSBURG, PENNA.
BRANCH STORES AND OFFICES NEW YORK - PITTSBURGH - CHICAGO - CINCINNATI BUFFALO - ST. LOUIS - SAN FRANCISCO

Amity Gasoline Company

Producers and Manufacturers

of

NATURAL GASOLINE

Bartlesville, Okla. Sistersville, West Va.

Southland Gasoline

"Eventually Quality tells"

TULSA, OKLAHOMA

GAS COMPRESSION AND GASOLINE EXTRACTION AS ENGINEERING PHASE

By E. W. Jordan
The Bessemer Gas Engine Co.

What we wish to present is a few thought in connection with the engineering phase of gas compression and gasoline extraction from natural gas.

There are a number of very important subjects in connection with this gasoline game that can profitably be given serious consideration—some of which have been very ably handled by others and, some others, have been touched upon lightly.

The first thing to be considered, of course, is the securing of a suitable quantity of gas with the proper gasoline content.

The second is, having secured the gas, how are we going to handle it to the best advantage?

The third point to consider is what kind of a plant is suitable for the conditions and location?

The fourth, and the most important of all, is how many dollars are we going to get back for the number of dollars spent?

It has been, more or less, the pleasure of the writer to have designed and built a large number of gas boosting and gasoline compression plants. And, in the straight gasoline two-stage compression plant complete with buildings, piping at station, machinery, foundations, concrete floor, auxiliary machinery, sufficient water tankage, but not gasoline storage tanks, or field lines, just the station complete ready for operation, with the above exception, the average cost would be approximately $130 per horse power of the compressor engines, or prime movers.

At first thought this may seem a very peculiar basis upon which to figure the cost of a plant; but, after some consideration, it will be seen that, after all, every item of the plant, except the quantity of gasoline produced, hinges upon the horse power available.

Aside from the richness of the gas the quantity of gasoline has very little bearing on the horse power required. Therefore we have always used the horse power of the prime movers as the basis of the cost of plant construction.

Concrete Example

Now, taking up the first item, let us consider a concrete proposition:

A prospect comes to us with the information that he has approximately 5,000,000 feet of free gas per day available, at open flow or atmospheric pressure, that by actual physical test it indicates two gallons per 1,000 feet, that fortunately the property is well piped and that with ½ mile of the proposed plant site is a commercial gas line, into which he can put all of his surplus gas at 15 cents per 1,000 feet on a basis of 10 ounce pressure. The commercial line carries a maximum pressure of 175 pounds. What will a proper and efficient plant cost and what returns can we expect from it?

This of necessity being a two-stage proposition, and inasmuch as we have to compress to at least 175 pounds to get the residue gas into the pipe line, the cost will be but a very small amount more to carry the pressure to 250 pounds, which the analysis calls for, for the best gasoline production. Therefore, we take that as the discharge pressure, and 14.4 pounds, or zero, for our intake pressure. (14.4 pounds is accepted as zero pressure throughout the Eastern and Mid-Continent fields). We already have two of our main factors to base our computations on, first, the quantity of gas to be delivered and the initial and final pressures.

Our next step is to find the proper power to handle the gas. To do this we first find the value of R., which equals the ratio of compression for each stage, which in turn is found by taking the square root of r., which equals the total number of compressions from zero to 250 pounds and is done in this way:

$$\frac{250 \text{ lbs.}}{14.4 \text{ lbs.}} = 18.39 \text{ or } r_s = 4.285 \text{ or R.}$$

4.285 is the number of compressions for each stage. From this we get our degree of volumetric efficiency and calculate our displacement on which to figure the required power. Turning to our curve of efficiencies we find that 4.285 compressions calls for 85 per cent efficiency, then 5,000,000=85 per cent of 5,880,000 and this is the figure on which we base our power required.

There are four methods of figuring this power: First,

$$\frac{9.52\ P_1\ (r.\ 105—1)\ 144\ V.}{550}$$

Second,

$$\frac{4.76\ P_1\ (R.\ .21—1)\ 144\ V.}{550}$$

Third formula: For two staging 100 feet per min. 4.138 P_1 (r. .105—1) or, for one stage 2.077 P_1 (R. .21—1=H.P. for 100 feet per minute.

In the above formula R. = ratio of single stage compressions r. = ratio of two stage compressions, P_1 = absolute intake pressure, V = volume in feet per second, .21 and .105 are exponents for gas only and do not apply to air, neither do the constants 9.52 and 4.76 apply to air compression (we may tell you why some other time).

First Formula

For our present problem we will use the first formula and substitute quantities for symbols.

$$\frac{9.52x14.4x\ (18.39\ .105—1)x144x68=}{550}$$

$$\frac{9.52x14.4x.358x144x68=875}{550}$$

I. H. P. at the compressor cylinder, which plus 5 per cent friction loss in compressor and connections = 920 B. H. P. Five 175 H. P. machines at 190 R.P.M. will handle our proposition nicely.

Then with our 920 B. H.P. established, we find that our completed two stage plant will cost our prospect 920x130.00= $119,600.00, not counting houses for operatives, trucks, automobiles and other miscellaneous paraphernalia which may, or may not, be needed.

In addition, we would suggest an absorption plant of sufficient capacity to take care of all the residue gas from the high pressure compressors after the fuel gas has been diverted, (at some future date we may explain why we would divert the fuel before it passes through the absorbers).

Deducting our shrinkage of gas by reason of taking out gasoline at about 50 feet per gallon and fuel for about 1,000 H.P. of engines, including auxiliaries, 5,000,000 feet of gas at 2 gallons per 1,000=10,000 gallons, 50 feet loss per gallon=50,000 feet and deducting the amount of gas required to operate the plant leaves approximately 4,000,000 feet of gas to pass through the absorbing plant.

The absorption plant for 4,000,000 feet of free gas at 250 pounds pressure should be built for not to exceed $25,000.00 and we would estimate the yield of gasoline from the absorbers as being about ½ gallon per 1,000 or 2,000 gallons to be credited to the absorption plant. Here again we have a loss of 100,000 feet of gas plus 50,000 feet per day for still purposes, making 150,000 feet together with the 764,000 feet shrinkage mentioned above, making 914,000 feet loss of gas not counting leakage about the plant due to faulty pipe fitting, poorly packed valve stems, piston rods, etc., which could easily bring to total to 1,000,000 feet.

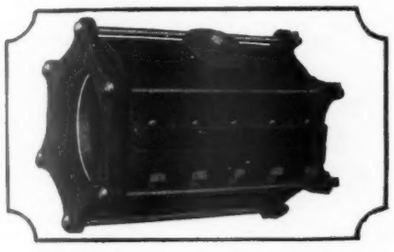
We have endeavored to think in averages, as we all know there is nothing constant in the flow or quantity of gas coming from the ground.

It is all very well to design a plant for specific conditions, but we must not lose sight of the fact that it should be so designed as to take care of abnormal conditions, effectively and efficiently, as the gas and gasoline plant game is a very flexible proposition.

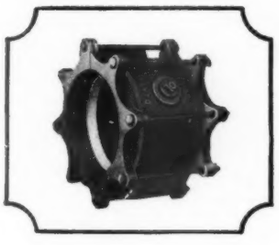
In addition to the above ½ mile of

DAYTON

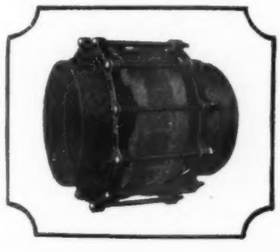
CLAMPS — SLEEVES — COUPLINGS



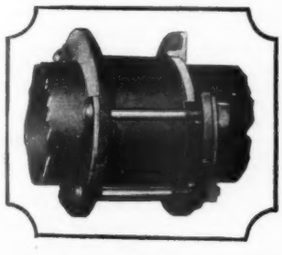
No. 8 SPLIT SLEEVE—Extensively used over threaded pipe couplings to stop leaks too large to shut off with collar leak clamps.



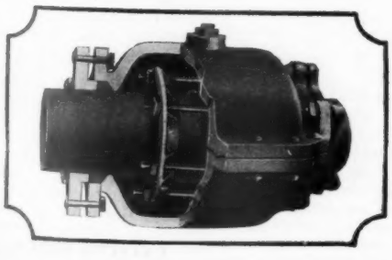
No. 8½ SPLIT SLEEVE FOR WELDED JOINTS—The most positive way to stop leaks in welded lines while maintaining service.



No. 13 SPECIAL OR EMERGENCY CLAMP—The only clamps made that can be used over all other plain end pipe couplings with the same results attained when used with Dayton Couplings.



No. 9 COLLAR LEAK CLAMPS—The most practical clamp for shutting off leaks at couplings in screw pipe.



No. 7 SPLIT SLEEVE—Especially adaptable for stopping leaks at coupling on plain end pipe.

THE DAYTON PIPE COUPLING CO.

DAYTON OHIO, U. S. A.

Should Women Bob Their Hair?

NYE—the Die Man
Pipe tool maker to the American Plumber and Steamfitter

Someone wrote to the fashion editor and asked if short skirts make women look shorter. He replied, "we don't know what it does to the women, but it makes the men look longer."

I met a man the other day who believes all women should bob their hair. He had me just about convinced. And then I found out he was a barber.

As far as we are concerned, if women want to bob their hair that is their business, but if you want pipe threading or cutting tools—that is our business.

If a woman bobs her hair it makes her look younger. Nye dies don't make a man look younger. They do better than that—they make a man *feel* younger. And they make him live longer—and act better.

The Nye die with its skip tooth feature,—and the Nye knurled knife blade cutter wheels—work smoother and faster than any other similar tools.

Nye thin blade cutter wheel, made to fit all standard makes of pipe cutters, and guaranteed against breakage in use. Made both in smooth and knurled edge.

With the fine tool steel of which they are made they last longer than any other. And so does the man who uses them.

HARRY G. NYE.

THE NYE
TOOL & MACHINE WORKS

108-128 North Jefferson Street,
Chicago, Illinois

The tools you swear by and never at

Natural Gasoline Manufacturers

We extend to you a hearty welcome and hope your visit to Tulsa is a pleasant one.

LINE PIPE CASING

H. P. Taubman Supply Co.

Box 2141 Tulsa, Okla.

Yard 2 North Cincinnati

pipe is needed to convey 4,000,000 feet of gas to the commercial line: With 250 pounds at the plant, and 175" at the commercial line, we find that ½ mile of 4" line will handle 4,000,000 feet nicely: the approximate cost of which, under average conditions, would be $3,000.

Financial Return

The foregoing has led us to the fourth and main item: How many dollars can our client expect to receive for the number of dollars spent?

Cost of compressor plant complete	$119,600
Absorption plant complete	25,000
One half mile pipe line, ditched and buried	3,000
Miscellaneous houses, automobiles and trucks	6,000
Loading rack and spur near plant	2,500
Miscellaneous small lines about plant, laid and covered	3,000
60,000 gallons tankage and loading system	7,500
Oil storage tanks	1,500
Miscellaneous labor, freight and haulage, not charged into general plant construction	10,000
	$178,100
Operating expenses—	
6 per cent on investment per month	$ 890
10 per cent depreciation per month	1,483
7 average wages $150	1,050
Lubricating oil, waste, tools, miscellaneous supplies and maintenance	1,000
Absorbing oil wastage per month	200
Taxes and insurance per month	3,000
Sales and tank car rentals	3,600
Miscellaneous expenses, such as teaming, trucking, auto, testing and laboratory expenses	1,250
Administration and office rentals	2,500
Total operating expense per mo.	$14,973
Income—	
360,000 gallons at average price of 15 cents	$ 54,000
4,000,000 feet free gas reduced to 10 ounce basis=3,833,600 feet= 115,008,000 per month 15 cents	17,251
Total gross income per month	$ 71,251
Miscellaneous expenses	$ 14,973
Straight Royalty of 40 per cent on gross income	28,500
Total expenses per month	$ 43,473
Gross income per month	71,251
Gross expense	43,473
Net income per month	$ 27,778

This shows, on a gasoline production basis of 2½ gallons per 1,000 feet @ 15 cents, and sale of gas @ 15 cents per 1,000 based on 10-ounce pressure, and a royalty basis of 40 per cent of gross income, and the presumption that the plant is running every hour at its full capacity and under the most favorable conditions, a net profit of $333,336 per year. But loss of gas by reason of cleaning wells, shut downs for various reasons and other difficulties could very easily reduce this amount 25 per cent, or to $250,000.

It will be seen that this plant will have the advantage of a good gasoline yield as well as disposal of the residue gas, and considering the fact that the owner of the gas lays the field piping and maintains them, the high rate of royalty is possible, giving a fair profit to each.

Good Proposition

On the other hand, if the gas had a yield of only 1½ gallons of gasoline per 1,000 feet it would still be a good proposition.

5,000,000 feet at 1½ gallons=225,000 gallons per month at 15 cents	$ 33,750
120,000,000 feet gas at 15 cents	18,000
	$ 51,750
(There would not be so great a loss of gas at 2½ gallons).	
Royalty on gross earnings at 40 per cent	20,000
Miscellaneous expenses remain the same	14,973
Total expenses per month	$ 34,973
Gross income per month	$ 51,750
Gross expenses per month	34,973
Net income per month	16,777

Or a net income of $201,000 per year on an invesment of approximately $180,000.

It will be noted that the original cost of this particular plant and operating expenses remain practically the same, whether 2, ½ gallons are made or 1, ½ gallons, with the possible exception of tank car expenses, and the same would be true if the output should be 4 gallons per 1,000 feet.

Simplest Mthod

This represents the simplest method of handling a certain quantity of gas under the most favorable conditions possible.

We are sorry to say that they do not all figure out that way, or so favorably to the investor.

Another thought we wish to implant in the mind of the prospective gasoline from natural gas producer is, examine your proposition thoroughly, scrutinize it carefully, examine it from all angles and if, under favorable conditions you cannot see at least a 50 per cent profit, do not touch it, because you are bound to come to hard times and your profits will be lean indeed.

Having decided to take the step, get the best possible machinery, something that is made by companies of unlimited experience is always best, the same with all your other material, including your field lines, do not use old second-hand piping for your field lines, for it does not last long and a rust hole the size of the end of your finger in an intake line where the pressure is below zero may cost you thousands of dollars in gasoline product.

Finally, secure the very best talent possible to design and construct your plant. You may have to pay him more, but if he is conscientious, you will make money; if he is not you do not want him at any price, for at best a man is only as good as his word.

It is like all branches of engineering, it is the expert and man of experience who will put money into your pocket at any reasonable compensation.

EASTERN FIELDS

(Continued from Page 140)

In Springhill Township, the Hope Construction & Refining Co. has started to drill a test on the W. L. & J. M. Caseman farm. The Pierson Oil & Gas Co. is due in the sand at a test on the W. H. Pierson farm. In the same township, the Phillips Oil & Gas Co. is due in the Big Injun sand at a test on the Patrick Gump farm. In Morris Township, the Carnegie Natural Gas Co. has started to drill a test on the C. Stewart farm. In the same township, the Manufacturers Light & Heat Co. has started to drill a test on the C. W. Webster farm.

In North Strabane Township, Washington County, Tague, Lutton & Co. are due in the sand at No. 4 on the R. G. Lutton farm and drilling No. 5 on the same farm. In South Strabane Township, the same parties are starting a test on the C. E. Carothers farm. In the same township, Robert Hayes and others have started to drill a test on the William Thome farm. In South Franklin Township, the Manufacturers Light & Heat Co. has the rig completed for a second test on the Charles & Jennie Laycock farm. In the Wildwood district, Allegheny County, F. W. Forney & Co. have the rig completed for a test on the Thomas Donaldson farm. Ferguson & Co. are due in the sand at a test on the Conrad Hardt farm.

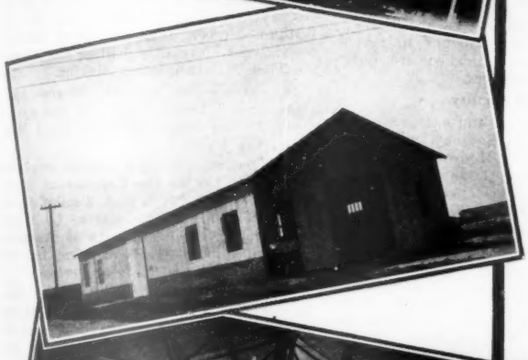
AWARDED HOUSTON CONTRACT

HOUSTON, Tex., April 18.—McPherson & Mitchell, of Fort Worth, have been awarded the contract to ditch and lay the gas line of the Houston Pipe Line Co., a subsidiary of the Houston Oil Co., from Live Oak County to the Houston ship channel, with a branch line from Jackson County to Gulf, Matagorda County. The line from Live Oak County will be composed of 16, 18 and 20-inch pipe. Gas will be furnished sulphur plants, sugar refineries, oil refineries, electric power plants and other industries. At present the company is making no effort to secure domestic consumers, or to secure franchises in Houston or Galveston or smaller places.

EXCITED ABOUT GAS STRIKE

Jackson, Miss., is excited over the prospect of a gas field, following a blowout in a well drilling by the Free Run Oil Co. at Free Run, Holmes County, 12 miles from Yazoo City. The well is shut in pending the arrival of Dr. E. N. Lowe, of Oxford, State geologist, who will investigate and make a report on the well.

Small, Medium or Large — BRADEN Buildings Will Meet Your Requirements



We are pleased to announce that we have secured the services of

MR. H. V. CARTER

who has won wide and favorable recognition as a result of his work in steel building construction. Mr. Carter is now in charge of our Engineering Department.

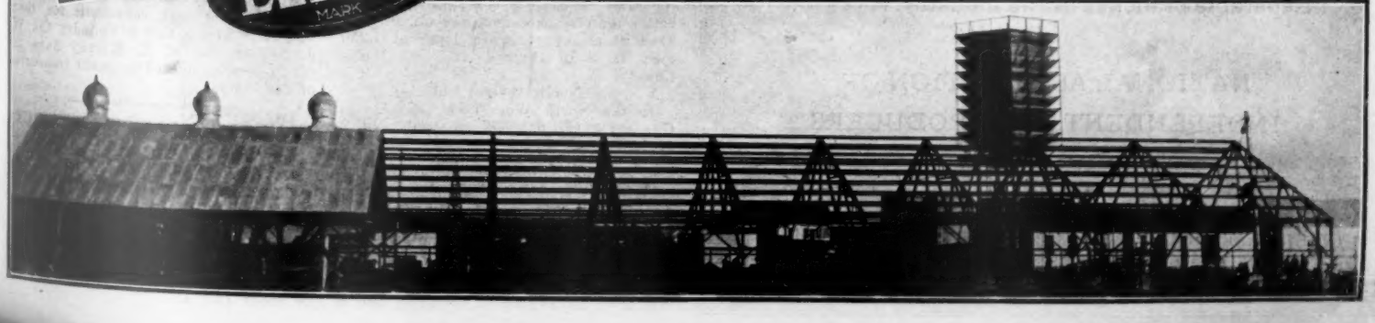
Braden "E-Z-Bilt" Buildings are made in the heart of the oil country and a large assortment of sections is carried in stock—this means that shipments are made without delays.

All parts are standard and are largely interchangeable—this means quick erection, without skilled labor. As a result, a short time after you decide to have a building, a well-built, weathertight and fireproof structure is on the job.

There are good reasons why such leaders as Marland, Mutual, Roxana and McMan use Braden "E-Z-Bilts." Our engineering department will be glad to furnish you with a figure on the buildings you have in mind.

THE BRADEN COMPANY
TULSA, OKLAHOMA

118



Hurley Gasoline Company

Manufacturers and Marketers of

High Grade Gasoline

Kennedy Building
TULSA, OKLA.

The Association of Natural Gasoline Manufacturers has become a National affair. The use of natural gasoline has become indispensable to the refiner of crude oil.

Natural gasoline is produced largely from casinghead gas which is in turn produced from crude oil taken at the well. The operation of the natural gasoline plants is so interwoven with the operation of oil producing properties as to be inseparable.

The National Association of Independent Oil Producers cooperates with the Association of Natural Gasoline Manufacturers at all times in bringing about harmony between these two inseparable branches of the industry.

NATIONAL ASSOCIATION OF INDEPENDENT OIL PRODUCERS

By W. H. Gray,
President

KENTUCKY-TENNESSEE

(Continued from Page 51)

The Petroleum Exploration is testing out the Gillespie and Price leases owned by Bolling, Loman & Rehn, with a view to purchasing them.

Owensboro District

In the Owensboro district, comprising Hancock, Ohio and Daviess Counties, the Pennsylvania-Indiana Oil Co.'s No. 1 Colonel Powers farm, south and east of the Swope well and 2 miles northeast of Whitesville, Daviess County, tested 124 bbls. at 800 feet after shooting 25 feet in the Barlow sand. It extends the Swope Barlow sand pool a quarter of a mile to the southeast and is the best well ever drilled in Owensboro district.

The Swope area, south of the Herbert Schoolhouse Pool, is looking good and a large amount of new work will be started there shortly. The Indian Pipe Line Corp. recently built a line to connect the wells already drilled.

The Wood Oil Co.'s No. 4 Bartley, 400 feet north of No. 2, was dry in both the stray and Jett sands. This lease is at Collier's Station. Thomas and associates' No. 4 J. H. Evans, 400 feet north of No. 2, made 5 bbls. on pump from the Jeet sand. From all appearances the Collier Station Pool will not amount to much as the wells already finished are only small pumpers or dusters.

Barren County

One salt water well and six producers is the record made in Barren County last week. In the Emery-Moore Pool, Fred Moore's No. 2 Hans Gassaway tested 4 bbls. at 344 feet; same operators' No. 9 fee 16 bbls. at 545 feet.

In the Hall Baker Pool, the Consolidated Gas Co.'s No. 10 Hall Baker struck salt water in the deep sand and was abandoned; same concern's No. 2 Bradford, 6 bbls. at 558 feet; shale was from 364 to 413 feet. Gas sand from 454 to 457 feet and the oil sand from 510 to 540 feet. The Wood oil Co.'s No. 3 on the William Church 114 acres, is good for 10 bbls. after being shot with 40 quarts in a sand from 559 to 568 feet, and with 20 quarts from 518 to 522 feet.

In the Gorby Pool, L. J. Emery, Jr., & Sons Co.'s No. 5 Depp & Greer started off at 20 bbls. at 180 feet below the shale; Porter and others' No. 3 McLaughlin pumped 3 bbls. on power at 183 feet below the shale.

Allen County

North of Scottsville, in the Gainesville Pool of Allen County, the White Plains Oil & Gas Co.'s No. 17 A. T. Hinton tested 5 bbls. at 272 feet; Rehn & Ogle's No. 1 Morehead made 2 bbls. on jack at 335 feet.

Wynn & Lowe's No. 15 E. L. Ayers, in the Satterfield Pool, pumped 2 bbls. at 435 feet.

Southwest of Scottsville, in the vicinity of Rodemer, R. A. McLain's No. 1 E. Britt, between the Hooten and McReynolds Pools, started off making 4 bbls. at 270 feet. In the Mitchell area, Bastrus and others' No. 1 Bill Dennis was dry and plugged at 320 feet.

Eastern Kentucky

Twelve completions were recorded in the eastern division of the Blue Grass State the past week, six of which are producers with a flush of 134 bbls.; two were gassers and the remaining four were dry holes. The Atlantic Oil Producing Co.'s No. 3 Roberts is the best strike of the time in review being estimated at better than 35 bbls. from the Corniferous sand at an approximate depth of 1,250 feet. It is in District No. 9, Wolfe County.

North Weir Field

In the North Weir Field, the Union Gas & Oil Co. finished two wells, No. 2 R. N. Sparks, good for 30 bbls., and No. 10 M. E. Sparks, good for 40 bbls. Both wells are in District No. 22 of the Lawrence and Johnson Weir sand district and were completed at 670 and 654 feet, respectively. This company is cleaning out No. 8 C. K. Dobyne; Nos. 6 and 7 W. D. Lester, No. 2 R. N. Sparks, No. 31 P. P. Holbrook, No. 10 M. E. Sparks, No. 2 C. E. Frailey is spudding and a rig is being moved to a location on the J. J. Gambill tract.

South Weir Field

The South Weir Field of Johnson and Magoffin Counties showed two small wells, both being in District No. 31. The Marie Oil Co.'s No. 2 B. F. Whitt pumped 4 bbls. and the Bed Rock Petroleum Co.'s No. 18 J. H. Arnett tested 10 bbls. from the Weir sand.

Wayne County

Drilling operations in Wayne County have increased steadily during the past 30 days and more work is progressing at this time in the Beaver sand field than has been witnessed in the past 18 months. Dillon, Shearer & Marsh just brought in their fourth well on the J. A. Brown farm, estimated to be good for 15 bbls. from the Beaver sand at an approximate depth of 550 feet. No. 5 is spudding. M. D. Shearer and others are spudding in No. 1 Simpson, at Susie; W. M. Bach and others are drilling No. 1 Henry Thompson, near Barrier; C. E. Daugherty & Co. are drilling No. 3 Burnett, at Burfield; J. W. Copper is making arrangements to start two wells near the hamlet of Cooperville; Reg G. Carpenter is rigging up No. 1 Sam Castillo; H. L. Bowden has let contracts for the drilling of seven wells in the Turkey Rock district; G. W. Pyle is starting No. 1 William Mercer, 1 mile north of Monticello; Brad Morrow is drilling No. 11 on the Tobe Martin farm at Sinking.

In the Cooper district, Hogue and others' No. 1 Lovelace was dry and abandoned as was George Backer's No. 1 Miller at Oil Valley.

In Lee and Owsley Counties, two dry holes were had in the Corniferous sand. Beamer & Co.'s No. 1 test, 2 miles south of the Petroleum Exploration Co.'s gas field, and on the headwaters of Sturgeon Creek, and D. J. Johnson's first test on the New Era Land Co.'s properties.

In Rowan County, McDonald & McGuires' No. 2, west of the city of Morehead, and McKinney Brothers' No. 1, near Mt. Hope, were both small gas wells.

NEW GASOLINE PLANT

The Gilliland Oil Co. has started work on its Louann, Ark., gasoline plant, which when completed, will be one of the largest gasoline plants in Arkansas. It is understood the company purchased five Clark Bros. compressor units for the plant. When completed, however, it is expected the plant will have at least ten or fifteen compressor units.

NEW BOOK ON HOLLOW BALLS

The Hollow Ball Co., of Baltimore, Md., has issued a new booklet on the process developed to insure accuracy of form and balance, combined with lightness and strength in the manufacture of its product. This product, used in check valves, pumps, steam traps and floats, and several other varieties of oil field equipment, is explained in great detail by the new booklet.

MOVES GENERAL OFFICES

The Conley Tank Car Co. will move its general offices and after May 1 will be located in the Oliver Building, Pittsburgh, Pa. The company is now having delivered to it, 150 new 8,000-gal. plain and insulated tank cars built for them by the American Car & Foundry Co. W. J. Stebler and M. C. Murray have recently been appointed assistant treasurers of the company.

MARION CO. BUYS SWARTWOUT

On April 1, 1925, the Swartwout Co., manufacturers of metal portable buildings, sold out to the Marion Machine Foundry & Supply Co. The property, equipment, stocks and offices of the company will be moved to Marion, Ind., as soon as possible, which is expected to be about July 1.

Vogt

DROP FORGED STEEL VALVES & FITTINGS

The Vogt Drop Forged Steel Valves and Fittings here illustrated, show some of the types manufactured and stocked in large quantities.

They are the accepted standard for high pressure and temperature service with oil, gas, ammonia, air, water and steam.

They have never failed.

WRITE FOR BULLETIN F-5

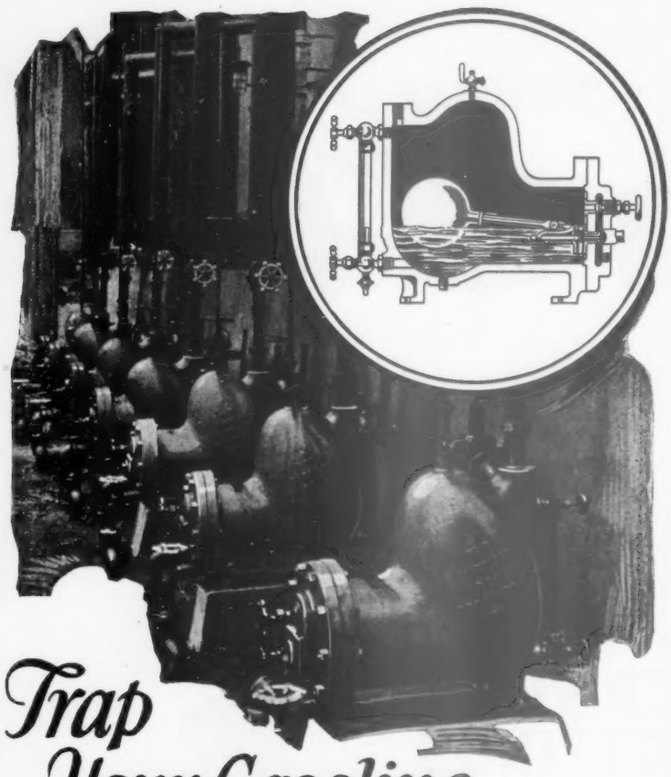
Henry Vogt Machine Co.

Incorporated

Louisville, Kentucky

BRANCH OFFICES:
NEW YORK, CHICAGO, PHILADELPHIA, DALLAS

MANUFACTURERS OF
DROP FORGED STEEL VALVES AND FITTINGS: WATER TUBE AND HORIZONTAL TUBULAR BOILERS: OIL REFINERY EQUIPMENT: REFRIGERATING MACHINERY



Trap Your Gasoline

Illustration shows American Ideal Traps in the Absorption Tower of the nautral gasoline plant of Palmer Corp., Schwartz, La. These traps are used to trap gasoline from the absorber and to catch the residue gas passing back to absorber, where it is again picked up by the mineral seal spray and the gasoline absorbed by same.

AMERICAN IDEAL STEAM TRAP

has an unusually large valve opening, consequently you can use a smaller, and therefore a less expensive, American Ideal Trap and handle the same volume.

This extra large valve orifice makes it impossible for the valve to clog or chatter. Seat can be renewed without making disconnections.

Is equipped with an extra heavy seamless copper float of exceptionally large diameter, which is guaranteed for the life of the trap.

Other features explained in our interesting booklet. Write for Catalog No. S-5.

AMERICAN SCHAEFFER & BUDENBERG CORP.

Brooklyn, N. Y.

Thermometers, Gauges, Recorders, Valves, Temperature Controllers

*Boston	Cleveland	Philadelphia
Buffalo	Detroit	*Pittsburgh
*Chicago	*Los Angeles	Salt Lake City
	*Seattle	Tulsa

*Stocks carried at these branches

Direct Factory Representatives for Eastern Canada:
Mechanical Equipment Co.
902 New Birks Building, Montreal
For Western Canada:
Kipp-Kelly, Ltd., 68 Higgins Ave., Winnipeg

147

N. LOUISIANA-ARKANSAS

(Continued from Page 46)

same section, cemented 8¼-inch casing 2,207 feet. In Section 17-16-15, No. A-3 Lawton, rigging up; derrick is up for No. C-2 Lawton, in Section 10-16-15; No. 7 Murphy, in Section 8-16-15, drilling 2,243 feet; 10-inch casing has been set 310 feet; total depth 380 feet in No. B-3 Murphy in Section 17-16-15; No. D-3 Murphy, Section 8-16-15, arranging to core sand at 2,354 feet; No. E-2 Murphy, in Section 9-16-15, drilling at 2,414 feet; No. F-2 Murphy, in Section 9-16-15, cemented 6⅝-inch casing at 2,462 feet; No. F-3 Murphy, same section, set 10-inch casing at 486 feet, total depth 1,250 feet; No. A-2 Oran, arranging to deepen from a depth of 983 feet, in Section 5-16-15; No. A-3 Oran, in Section 5-16-15, stuck 8¼-inch casing at 2,015 feet, cemented 6⅝-inch casing at 2,338 feet; No. B-2 Oran, in Section 5-16-15, drilling 1,900 feet.

Ohio Oil Co. are setting 6⅝-inch casing at 2,395 feet on No. 5 S. Murphy, in Section 9-16-15; building derricks for Nos. 6 and 7 S. Murphy, in Section 9-16-15; in Section 10-16-15, cemented 6⅝-inch casing at 2,377 feet on No. 7 Pate; rigging up to drill No. 8 Pate, same section, and building derrick for No. 9 Pate, same section. Owen Trustee's No. 2 Edwards, Section 16-16-15, has derrick up.

Page and others' No. 5 Murphy, Section 7-16-15, standing full of salt water at 2,464 feet, coring at 2,472 feet; No. 6 Murphy, same section, rigging up. In Section 6-16-15, Parish and others' No. 3 Ferguson, is a derrick. Penguin Oil Co.'s No. 3 Sandford, Section 6-16-15, rigging up to drill. The Phillips Petroleum Co.'s No. 5 Alphin, Section 11-16-15, set 10-inch casing at 372 feet; No. 8 Giller, Section 10-16-15, fishing for slip, 2,395 feet; Pure Oil Co.'s No. 2 Bilyew, Section 8-16-15, set 15½-inch casing at 21 feet, 10-inch at 600 feet, drilling 1,080 feet; No. 3 Bilyew, same section, rigging up; No. 4 Bilyew, same section, derrick; No. 1 Dumas, Section 16-16-15, cemented short string of 4½-inch 2,481 feet, total depth 2,482 feet.

A. H. Ramage's No. 2 Cook, Section 16-16-15, coring at 2,457 feet; No. 3 Cook, same section, derrick; No. 7 James, Section 6-16-15, cemented 4½-inch casing at 2,394 feet, bailing to test 6-inch sand, 2,400 feet; rigging up to drill No. A-3 Lawton, No. C-5 Lawton and No. C-6 Lawton, all in Section 10-16-15. Ray Drilling Co.'s No. 3 Tatum, in Section 7-16-15, arranging to deepen at a depth of 2,029 feet. Sam Richardson's No. 3 Lawton, Section 10-16-15, cemented 6⅝-inch casing at 2,449 feet; Rogers and others' No. 1 LeCroy, Section 17-16-15, drilling 2,200 feet; No. 3 LeCroy, same section, set 10-inch casing 492 feet, now drilling at 1,010 feet.

Roxana's Activity

The Roxana Petroleum Corp. has four rigs running in Section 9-16-15; made location for No. 5 Bilyew, and rigging up to drill No. A-1 A. Flenniken, in Section 10-16-15; milling through casing at 1,853 feet on No. A-2 Flenniken, same section, and building derrick for No. A-3 Flenniken, same section. In Section 5-16-15, No. B-1 A. Flenniken, set 12½-inch casing at 492 feet, now drilling 816 feet; No. B-2 Flenniken, same section, drilling rock 2,251 feet; No. B-3 A. Flenniken, same section, drilling 400 feet; No. B-4, A. Flenniken, same section, rigging up. In Section 8-16-15, No. C-2 A. Flenniken, drilling 1,927 feet; No. C-3, A. Flenniken, set 12½-inch casing at 493 feet, now drilling 805 feet; No. C-4 A. Flenniken, set 12½-inch casing at 493 feet. In Section 9-16-15, No. 2 Hardy Murphy, drilling gumbo at 1,780 feet; No. 3 Hardy Murphy, same section, is a derrick and location has been made for No. 4 Hardy Murphy, same section. Russell and others' No. 1 Brown, in Section 8-17-14, rigging up. Rutledge Trustee's No. 6 Hodges, in Section 6-16-16, is a derrick.

Simms Oil Co.'s No. 1 Cook, in Section 16-16-15, set 10-inch casing at 465 feet, now drilling at 1,500 feet; No. 4 Cook, same section, set liner and started to bail, began making gas outside 6-inch casing, will cement around top casing before bailing in 4-inch sand, 2,368 feet; No. 6 Cook, same section, rigging up; Smitherman McDonald, waiting on standard rig with 45 feet of sand and 400 feet oil in the hole at 2,026 feet in No. 1 Hicks, in Section 23-16-16, No. B-4 Burton, in Section 5-16-16, is a derrick.

Standard Oil Co. has derricks up for No. 7 M. W. Hardy, in Section 4-16-15; No. 17 M. W. Hardy, in Section 10-16-15; No. 20 M. W. Hardy, same section; No. 24 M. W. Hardy, in section 4-16-15; No. 25 M. W. Hardy, in Section 4-16-15; and No. 27 M. W. Hardy, in Section 9-16-15. It is drilling in hard sand at 2,300 feet in No. 18 J. H. Alphin, in Section 3-16-15, and drilling at 2,125 feet in No. 20 J. H. Alphin, same section. It has set 10-inch casing at 340 feet in No. 3 M. W. Hardy, in Section 9-16-15; drilling broken lime rock at 2,300 feet in No. 5 M. W. Hardy, in Section 4-16-15, and setting 6-inch casing in rock at 2,380 feet on No. 6 M. W. Hardy. In Section 6-16-15, cored gas sand at 2,394 feet on No. 11 McClannahan.

Stages and others are drilling No. 1 Cook, in Section 16-16-15, at 2,150 feet; D. N. Stewart's No. 1 Murphy, Section 6-16-15, lost hole at 2,006 feet, moved derrick 26 feet south and began drilling on April 9, and set 10-inch casing at 490 feet; No. 2 Murphy, same section, fishing for roller bit at 2,085 feet; Sun Oil Co. is setting 6-inch casing at 2,372 feet in No. 5 Hatfield, Section 6-16-15; milling bit at 1,953 feet in No. 8 Hays, Section 3-16-15; No. 9 Hays, same section, began drilling April 8, set 10-inch at 495 feet, now drilling 540 feet; No. 10 Hays, same section, began drilling on April 6, now drilling at 423 feet; No. 11 Hays, same section, is a derrick pattern.

The Sunny Jim Oil Co. temporarily abandoned No. 1 Flenniken, in Section 9-16-15, at a total depth of 2,126 feet; drilling at 2,400 feet in No. 6 Flenniken, in Section 9-16-15. The Sure Oil Co. cemented 6⅝-inch casing on No. 4 Flenniken, at a depth of 2,375 feet, in Section 5-16-15; set 15½-inch casing at 18 feet, 10-inch at 507 feet, on No. 5 Flenniken, same section; set 15½-inch casing, total depth 600 feet, in No. 6 Flenniken, same section.

The Texas Co.

The Texas Co.'s No. 6 Alphin, in Section 3-16-15, arranging to test 3 feet of sand at 2,364 feet; No. 7 Alphin, same section, rigging up to drill, No. 3 Calloway, Section 4-16-15, coring at 2,351 feet; No. 4 Calloway, same section, drilling lime 2,195 feet; No. 5 Calloway, same section, drilling 2,325 feet; No. 6 Calloway, same section, drilling lime at 1,995 feet; No. 6 Graves, Section 3-16-15, drilling 2,357 feet; No. 4 Hays, Section 4-16-15, drilling 1,735 feet; No. 5 Hays, same section, drilling 1,570 feet; No. 6 Hays, same section, drilling 1,905 feet; No. 7 Hays, same section, drilling 980 feet. Derricks are up for No. 1 Howard and No. 1 Langley, in Section 7-16-16. The Tidal Osage Oil Co.'s No. 5 Vestal, in Section 17-16-15, drilling at 1,490 feet.

The United Central Oil Corp. has erected derrick for No. 6 Craig, in Section 14-16-15; arranging to deepen No. 2 Murphy from 2,138 feet, Section 8-16-15, formerly completed in April, 1924, pumping 150 bbls., and known as Sanford and others' No. 2 Murphy; No. 4 Murphy, same section, is drilling at 2,404 feet. The Unity Petroleum Co. has derrick pattern for No. 2 Lawton, in Section 10-16-15; No. 6 Roper, in Section 3-16-15, has been temporarily abandoned at 2,383 feet; No. 8 Roper, same section, drilling at 1,900 feet; No. 9 Roper, same section, cemented 10-inch casing at 511 feet, now drilling 1,100 feet; No. 10 Roper, same section, drilling 50 feet.

Ward and others' No. 1 Goodwin, in Section 16-16-14, tested salt water at 2,441 feet, waiting orders at 2,483 feet; arranging to deepen No. 1 Hicks, in Section 11-16-15, from a depth of 1,880 feet. In Section 22-16-15, Webb Oil Corp.'s No. 1 Adcock, waiting on standard rig at 2,042 feet. Weatherbee and others are rigging up on No. 1 McGraw, Section 7-16-15. Nye Wilson's No. 5 Hays, Sec-

Almost two generations of Service and Experience.

A record of achievement that can be pointed to with great pride.

B & S Standard Type Oil Country Boilers are designed and built in strict accordance with the A.S.M.E. Boiler Code.

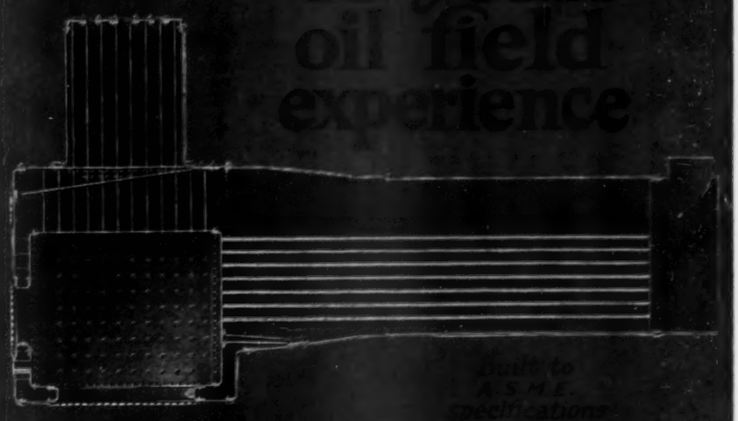
All plates of B & S Boilers are open hearth homogeneous steel of fire box and flange quality.

Horizontal seams of the barrel and connection sheet are triple riveted.

Surely, you need a Boiler that is powerful and rugged in *all its details.* Then specify B & S Boilers.

Write for circular No. 15 that explains more fully.

BOVAIRD & SEYFANG MANUFACTURING COMPANY
Bradford, Pa.



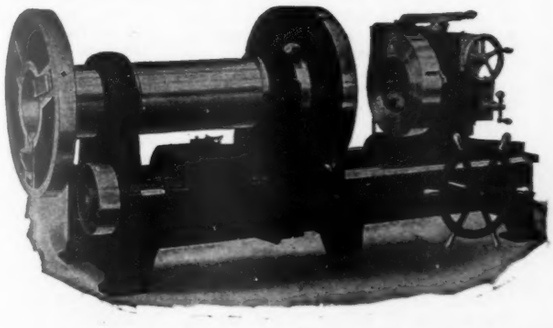
backed by 48 years oil field experience

Built to A.S.M.E. specifications

The Bovaird & Seyfang Drilling Boiler

Also carried in stock by Republic Supply Co. stores and Bovaird Supply Co. stores

PEERLESS B&K DUPLEX D.C.



Simple–Rugged

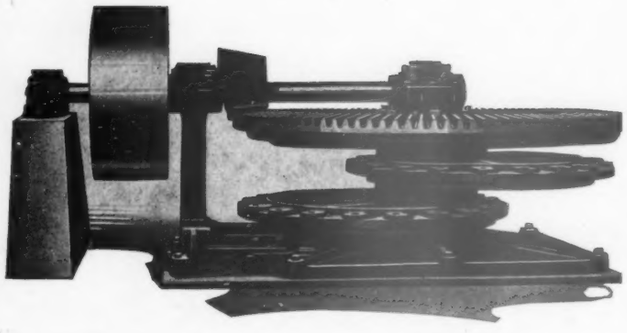
Notice the construction of this machine for threading pipe, the front housing close to the gripping chuck, every part being designed for hard and continuous service. Some of these machines have been in operation for nearly fifty years and still do good work.

The details of design have changed to meet new demands, but simplicity and ruggedness are permanent characteristics.

Catalog?

BIGNALL & KEELER MACHINE WORKS of the N. O. Nelson Mfg. Co.
Edwardsville, Illinois

PATTIN POWER



Eccentric 20″ Stroke *Weight 6250 Pounds*

The power illustrated above is our latest, and the most powerful geared power on the market.

A very heavy underpull power with two eccentrics, each having a 20″ stroke. The pinion shaft is supported on three bearings, a very important point, as tight belts soon pull ordinary powers out of line, resulting in broken gears. This power is geared eight to one, the pinion is steel, and we have never had one to fail on the heaviest loads.

We recommend this power in place of the usual band wheel powers, and their expensive installation. Can also furnish this power with one eccentric.

The Pattin Brothers Co.
Marietta, Ohio

Branches:
Tulsa, Okla.
Wichita Falls, Texas

Agencies:
Blaisdell Mach. Co.
Bradford, Pa.

tion 4-16-15, cemented 5 3/16-inch casing at 2,341 feet, now drilling at 2,344 feet. Winger and others' No. 1 Lawton, Section 10-16-15, arranging to deepen at a depth of 2,064 feet. Wright and others' No. 2 Hodges, in Section 1-18-17, waiting on standard rig at 2,265 feet.

Ouachita County, Arkansas

The Amerada Petroleum Corp. is rathol-ing at 2,343 feet in No. 5 Calloway, Section 4-16-15; Arkansas Fuel Oil Co. set 10-inch casing at 342 feet in No. 4 Snyder, Section 34-15-15, and drilling at 1,875 feet; rigging up No. 5 Snyder, same section.

H. E. Clark is drilling at 1,720 feet in No. 2 Shirey, Section 36-15-17; sidetracking 12 joints of drill stem at 2,056 feet in No. 4 Smith, Section 26-15-17; and drilling at 2,110 feet; Clark and Melat are arranging to deepen from 1,962 feet No. 2 Murphy, Section 4-16-15, formerly completed December 13, 1924, making 135 bbls.

Dashko and others are drilling at 2,000 feet in No. 2 Joyce, Section 34-15-15; El Dorado Union Oil Co. arranging to set 8-inch casing at 1,395 feet in No. 1 Eagle Lumber Co., Section 17-12-15; rigging up No. 5 LaGrone, Section 35-15-17; drilling at 2,105 feet in No. 2 Umsted, Section 4-16-15.

Forest Oil Co. is drilling at 1,680 feet in No. 1 Arnold, Section 26-15-16; drilling at 1,405 feet in No. B-2 Lewis, Section 26-15-16; 6-inch casing collapsed in Guy Freeling's No. 3 Gibson, Section 26-15-17, and they are setting a short string of 4-inch casing at 2,300 feet; George and Jones set 4-inch casing at 2,364 feet in No. 2 Umsted, Section 4-16-15; have 10 feet of sand in the hole at 2,367 feet in No. 4 Umsted, same section, and waiting storage before bailing; tested No. 5 Umsted, same section, at 2,353 feet, 15,000,000 feet of gas, with spray of oil, arranging to deepen.

Giles and others are waiting on standard rig with 106 feet of broken formation in the hole at 2,084 feet in No. 2 Neely, Section 26-15-16; Gilliland Oil Co. set 6-inch casing at 2,247 feet in No. S-6 LaGrone, Section 36-15-17; Gladys-Belle Oil Co. waiting on standard rig with 13 feet of sand and 300 feet of oil in the hole at 2,068 feet in No. 1 Neely, Section 23-15-16.

Gray and others are waiting on standard rig with 700 feet of oil and 21 feet of sand in the hole at 2,256 feet in No. 4 Myar, Section 32-15-16; rigging up No. 5 Myar, same section.

Gulf Co. Operations

Gulf Refining Co. is sidetracking casing at 1,955 feet in No. 1 R. Bennett, Section 33-15-15; trying to kill water flow at 2,341 feet in No. 3 J. Goodwin, Section 3-16-15; set 6-inch casing at 2,351 feet in No. 13 Hardy-Murphy, Section 4-16-15, and drilling plug; derrick up for No. A-8 Umsted, Section 33-15-15.

Hickory Oil Co. set 6-inch casing at 2,200 feet in No. 2 Fincher, Section 32-15-16; Home Refining Co. Set 6-inch casing at 2,270 feet in No. 1 Berg, Section 27-15-17; Houston Oil Co. set 8-inch casing at 2,375 feet in No. 6 Hinton, Section 5-16-15; set 8-inch casing at 2,403 feet with one foot of sand in the hole in No. 10 B. T. Laney, Section 31-15-15.

Howell and others set 4-inch casing at 2,360 feet in No. 2 Williamson, Section 3-16-15; Humble Oil & Refining Co. set 10-inch casing at 82 feet in No. B-3 Berg, Section 30-15-15; set 4-inch casing at 2,381 feet in No. 5 Flannigan, Section 6-16-15; 6-inch casing at 2,382 feet in No. 6 Flannigan, same section, and drilling at 2,392 feet; drilling at 2,025 feet in No. 3 F. Murphy, Section 3-16-15; waiting 6-inch casing at 2,381 feet in No. 6 Umsted, Section 5-16-15; drilling at 303 feet in No. 8 Umsted, same section.

H. L. Hunt, and others set 6-inch casing at 2,292 feet in No. B-7 Halton, Section 26-15-17; set 6-inch casing at 2,270 feet in No. A-3 Myatt, Section 22-15-17; Imperial Oil & Gas Producing Co. tested salt water at 2,352 feet in No. 5 McClenahan, Section 6-16-15, and derrick up for No. 6 McClenahan, same section; Invaders Oil Co. waiting on standard rig with 1,800 feet of oil and 63 feet of broken formation in the hole at 2,078 feet in No. 2 Hardin, Section 22-15-16; set 10-inch casing at 312 feet, in No. 5 Miller, Section 5-16-15, and drilling at 1,500 feet.

D. N. Johnson is rigging up No. 4 Farris, Section 34-15-15; arranging to deepen No. 1 Fincher, Section 29-15-16; formerly completed October 12, 1923, estimated at 75 bbls. per day; E. M. Jones is rigging up No. 1 Wilson, Section 26-15-18.

W. R. Keever, is ratholing at 2,000 feet in No. 1 Neely, Section 27-15-16; Kourey and others arranging to deepen No. 1 Church, Section 28-15-15, from 2,068 feet, formerly completed February 12, pumping 60 bbls.; Langston and others topped Nacatoch sand at 1,423 feet in No. 1 Alley, Section 25-14-9, and drilling at 2,050 feet.

Louisiana Oil Refining Corp. and others set 10-inch casing at 103 feet in No. 1 Bland, Section 27-15-17, and drilling at 1,943 feet; drilling No. 2 Bland, same section, at 103 feet.

Leon and others are drilling at 1,980 feet in No. 4 Berg, Section 4-16-15; drilling at 1,100 feet in No. 5 Berg, Section 4-16-15; Lion Oil & Refining Co. is drilling at 1,957 feet in No. 2 Hays, Section 4-16-15.

Magnolia's Work

Magnolia Petroleum Co. is waiting on standard rig at 2,301 feet in No. 2 Bettie Clawson, Section 35-15-17; Marine Oil Co. is drilling No. 4 Hays, Section 4-16-15, at 1,370 feet; No. 5 Hays, same section is blowing 40,000,000 feet of gas and 10,000 bbls. of fluid, of which 90 per cent is salt water at 2,327 feet; derricks up for Nos. 6 and 7 Umsted, Section 5-16-15.

J. H. Meek, receiver, tested salt water at 2,356 feet in No. 9 McKenzie, Section 36-15-16; arranging to set 6-inch casing at 2,424 feet; Miles and others set 10-inch casing at 58 feet and drilling at 1,260 feet in No. 2 Neely, Section 26-15-16.

Natural Gas & Petroleum Co. is rebuilding derrick for No. B-1 Hill, Section 5-16-15; Owenwood Oil Corp. made location for No. 5 Snyder, Section 34-15-15; Penguin Oil Co. plugged back to 2,268 feet in No. 3 Hardin, Section 27-15-16, and waiting cement to set.

Pure Oil Corp. is waiting on standard rig with five feet of sand in the hole and 400 feet of oil at 2,040 feet in No. 2 Cunningham, Section 30-15-15; J. D. Reynolds set 10-inch casing at 61 feet in No. 2 Berg, Section 27-15-17, and drilling at 1,625 feet.

Roxana Petroleum Corp. set 12-inch casing at 475 feet in No. 3 Snyder, Section 34-15-15, and drilling at 525 feet; rigging up No. 4 Snyder, same section; set 12-inch casing at 481 feet and drilling at 938 feet in No. A-1 Umsted, Section 4-16-15; drilling No. A-2 Umsted, same section, at 1,650 feet; cemented 8-inch casing at 2,333 feet in No. 3 Umsted, Section 4-16-15, drilled plug and pulled out to bail casing; well blew in estimated making 20,000 bbls. of fluid, 90 per cent salt water, flowed wild for a while; have control head on; flowing estimated 5,000 bbls. through control head with 10 per cent oil at 2,336 feet; rigging up No. 4 Umsted, same section.

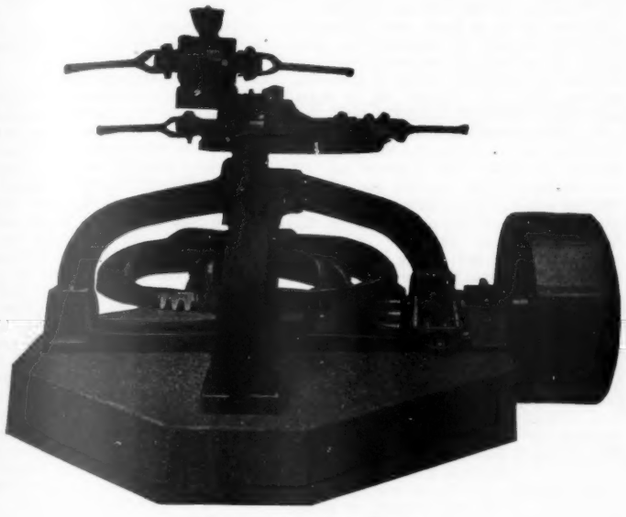
Shreveport Oil Corp. closed in No. 2 Umsted, Section 4-16-15, and waiting orders at 2,345 feet; set 10-inch casing at 450 feet in No. 3 Umsted. same section, and drilling at 1,050 feet; Simms Oil Co. set 6-inch casing at 2,004 feet in No. E-4 Berg, Section 30-15-15.

Standard's Drilling

Standard Oil Co. of Louisiana is drilling lime rock at 2,300 feet in No. 3 R. Bennett, Section 33-15-15; drilling at 200 feet in No. 13 M. W. Hardy, Section 5-16-15; tested salt water, no oil, with six feet of sand in the hole at 2,309 feet in No. 2 George Powell, Section 34-15-15; drilling shale and gumbo at 1,675 feet in No. 7 Umsted, Section 32-15-15; set 6-inch casing at 2,342 feet in No. 13 Umsted, Section 30-15-15; drilling hard sand at 2,190 feet in No. 14, Umsted, Section 32-15-15; drilling hard sand at 2,000 feet in No. 15 Umsted, same section.

Sure Oil Co. set 10-inch casing at 527 feet in No. 1 Hill, Section 5-16-15, and drilling at 900 feet; set 10-inch casing at 47 feet in No. 2 Snyder, Section 34-

REID TYPE "S" PUMPING POWER



Type "S" Pumping Power

The Reid Type "S" Eccentric and Disc Geared Pumping Power is intended for use on a number of wells which do not require as large a power as the two eccentric type and yet, due to their location, cannot be readily balanced on a one eccentric power. The addition of the disc to the eccentric permits better balancing of the wells, resulting in smoother operation with less strain on the machinery.

We do not recommend this power on installations requiring more than 15 HP. as, with the exception of the added disc, this power is the same as our "R" one eccentric power.

Write for Bulletin No. 29

JOSEPH REID GAS ENGINE COMPANY, OIL CITY, PENNSYLVANIA, U. S. A.

Branches and Agencies: Marietta, Ohio; Logan, Ohio; Newark, Ohio; Fort Recovery, Ohio; Shreveport, La.; Charleston, W. Va.; R. B. Moore, Bolivar N. Y.; Bradford Supply Co., Robinson, Ill.; Frick & Lindsay Co., Bradford, Penna., and Kentucky Distributors; S. R. Shoup, 708 Pacific Electric Bldg., Los Angeles, Calif.; Frick-Reid Supply Co., Tulsa, Okla., and Branches. Distributors for: Oklahoma, Kansas, Texas, Arkansas and Wyoming.
Branch Shop, Tulsa, Okla.

Photograph courtesy of the Bessemer Gas Engine Co.

The Standard Oil Co. of Indiana, Drumright Plant

Proper Ventilation Pays Dividends

Swartwout Ventilators are built of copper, or of a special rust-resisting metal, over a frame of heavy galvanized iron. They turn on noiseless non-corrosive and hard bronze ball bearings.
Stocks carried in principal cities including the Pacific Coast.

Swartwout
Rotary Ball Bearing
Ventilators

HERE'S a plant where heat, fumes, and gases are carried out as fast as formed. Swartwout Ventilators do this work thoroughly and silently, without attention and without cost, bettering operating conditions and increasing production.

Send for a copy of "The Gospel of Fresh Air," which contains much helpful data. Better still submit your problem in detail. Our ventilation engineers who have solved many and varied ventilation problems for the largest companies in the oil industry, will gladly make complete recommendations without obligation to you.

THE SWARTWOUT COMPANY, Cleveland, Ohio
General Offices: 18525 Euclid Ave. / *Factories:* Cleveland, Ohio—Orrville, Ohio

DUFF
Genuine Barrett
JACKS

For wrenching and unwrenching oil well tools

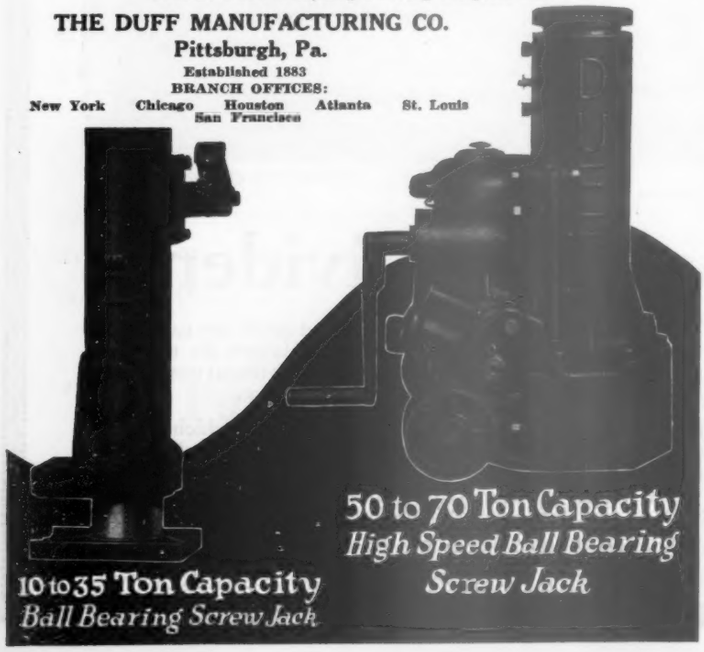
use the Genuine Barrett—the original oil well jack, the World's standard for over 40 years. Beware of imitations. Made in three different sizes, for light, heavy and extra heavy work. Safe, dependable, simple, permanent.

For general lifting service

select the jacks best fitted for your work, from the Duff line. Duff is America's oldest and largest maker of lifting jacks—everything from a small 1-ton Auto jack to the powerful 75-ton high speed ball bearing screw jack. When you get a Duff, you are sure you have the best jack money can buy.

Duff Jacks sold by leading Oil Well Supply houses. Ask for catalog showing complete line.

THE DUFF MANUFACTURING CO.
Pittsburgh, Pa.
Established 1883
BRANCH OFFICES:
New York Chicago Houston Atlanta St. Louis San Francisco



15-15; Sutton and others waiting on standard rig with 800 feet of oil and 18 feet of sand in the hole at 2,275 feet in No. 8 Hughes, Section 28-15-16.

The Texas Co. is arranging to pull 4-inch casing and will whipstock at 2,361 feet with six feet of sand in the hole, of No. 2 Neely, Section 27-15-16; drilling No. 3 Neely, same section at 1,848 feet; bailing to test 16 feet of sand at 2,052 feet in No. 4 Neely, also in Section 27-15-16; waiting on standard rig with 1,200 feet of oil and 40 feet of sand in the hole at 2,297 feet in No. 7 Reynolds, Section 23-15-17; drilling No. 5 Solmson, Section 32-15-16, at 2,276 feet.

The Texas and Pacific Coal & Oil Co. is drilling at 1,848 feet in No. 5 Laney, Section 31-15-15; Sid Umsted set 10-inch casing at 525 feet in No. 1 Fee, Section 4-16-15, and drilling at 950 feet; Unity Petroleum Co. is rigging up No. 4 Berry, Section 33-15-15; Whittiken and others set 6-inch casing at 2,314 feet in No. 6 Anderson, Section 23-15-17, and drilling at 2,317 feet.

O. F. Whittaker set 10-inch casing at 63 feet in No. 1 Berg, Section 27-15-17, and drilling at 1,800 feet; Wingfield and others are drilling at 1,980 feet in No. 1 Umsted, Section 4-16-15; set 10-inch casing at 573 feet in No. 2 Umsted, Section 4-16-15; Woodley Petroleum Co. is reaming to set 6-inch casing at 2,331 feet in No. 4 Umsted, Section 4-16-15.

Stephens Field

The Buffalo Oil Co., is drilling at 100 feet in No. 1 Wesson, Section 26-15-19; Magnolia Petroleum Co. set 10-inch casing at 114 feet and drilling at 500 feet in No. 7 Hammond, Section 25-15-19; C. W. Robinson is rigging up No. 1 Polk, Section 16-15-19.

CANADIAN FIELDS

(Continued from Page 48)

tests, one of which is reported rigging up. Both are close to No. 4 producer. Leases on Section 12, which were retained by the old McDougall-Segur interests after the collapse of the Calgary boom, have been taken over by Huronian Prospectors, Ltd., a new organization, which will put down a deep test. The officers of Huronian Prospectors, Ltd., include: President, Fred M. Graham; secretary-treasurer, J. H. Charman; directors, D. J. Young, George A. Walker, Charles W. Hague, William Pullar, J. McKinley Cameron, Dr. L. S. Mackid, Fred Filteau, Illinois-Alberta Oil & Refining Co., Section 12-20-3w5, is preparing to deepen its well to the Madison limestone. It now has a considerable wet gas production around 3,000 feet.

In the Sweetgrass district, southern Alberta, Imperial Oil, Ltd., is preparing to resume drilling at 1,000 feet on its Dead Horse Coulee No. 2, east of Coutts. Canadian Oil & Refining Co. (Rogers-Imperial), Section 29-1-11w4, is also resuming work in the same area. It is reported that the Prairie Oil & Gas Co. has extensive holding north and east of the Rogers-Imperial, reaching as far north as the Pakowki Lake district, and that a test in this area will be undertaken this spring. In the Kevin-Sunburst Field, a group of Saskatchewan men, headed by A. E. Landry of Gravelsbourg, Sask., have brought in their No. 1 well, and are preparing to put down six other tests this season. On the Corey farm, southwest quarter of Section 4-34-2w, Crumley & McKnight are reported to have got a third sand at 1,400 feet, bringing the production of their No. 1 well up to 425 bbls. a day.

Irma-Wainwright

In the Irma-Wainwright Field, east central Alberta, Maple Leaf Oil Co. is reported to have shipped a combination rotary-standard rig to Fabyan and will start drilling its No. 2 well on Section 24-45-8w4 early in May. British Petroleums, Ltd., is resuming work on No. 3 and is also reported getting ready to spud in its No. 5, near Irma. Western Consolidated Oils, Ltd., is resuming work on its No. 1 test, Section 20-45-6w4, and will drill a second test near the British Petroleums group of wells. Interior Oil Co. will probably resume the drilling of the old Wainwright Oil Producers Syndicate test, Section 36-44-7w4, about May 1. In the Viking Field, Northwestern Utilities, Ltd., of Edmonton, is bringing in a drilling crew from Wyoming and will drill one or more tests for gas this season to maintain its supply.

In northern Alberta W. Georgeson and associates of Calgary, are preparing to undertake the extraction of crude oil from the Athabaska tar sands by a new process involving the introduction of steam to separate the oil from the sand and force it to the surface.

Ontario Fields

In the Ontario Fields, the Union Natural Gas Co. is planning some additional development work in the Kent and Lambton Fields this season. In Kent County, a deep test has been spudded in just west of No. 13, the big producer in the Trenton deep field in Dover Township. This is understood to be the only deep test contemplated at present. Six or seven additional tests for gas will be drilled, either in the Tilbury Field or in Dawn Township, Lambton County. One test is now drilling in the Tilbury Field.

In the Thamesville shallow field, the Ajax Oil Co., drilling on the southeast corner of Lot 5, Concession 13, Gore, of Camden, is down 525 feet and shut down for coal. The test will be carried to 650 or perhaps 700 feet as a try-out of the newly discovered sand in the lower part of the Onondaga. E. P. Rowe is deepening a shallow producer 2 miles farther east, on Concession 1, Zone Township; the test is now down 350 feet.

In Norfolk County, the Dominion Natural Gas Co., which recently finished No. 4 in the Courtland Field, has located No. 5 somewhat south of No. 4.

In the vicinity of Toronto, Church & Robinson, representing unspecified interests, have made formal application to the city of Toronto for drilling rights on the Women's Jail farm, near Concord. A similar proposal was made last year by W. W. Sloan, who had been drilling unsuccessfully in the vicinity, but was refused. It is understood that a deep test is contemplated.

B. P. Corey & Son have provided additional storage for their refining plant at Petrolia.

Angus Sutherland, of Oil Springs, is leaving for Fort Norman with a drilling crew to resume work for Imperial Oil, Ltd., in the Far North.

MEXICAN FIELDS

(Continued from Page 42)

Leonard well, No. 1, Lot 11 Corcovado, which came in at 1,995 feet, apparently anybody's 20,000 bbls. This production was purchased by Huasteca Petroleum Co., (Mexican Petroleum), and a lateral from its pump station at Mendes, 1 kilometer away, was laid. The first 24-hour period the well shoved 6,800 bbls. through with little head pressure. Then the pressure dropped and it merely "exuded" through. It is thought the well may have bridged as it cut quite a pressure caper as it came up. The tools will be sent back in to develop what the real trouble is.

The next well in this northern district that is affording speculation is National Lines' No. 12 Chapacao, reported last week as good for 15,000 bbls. at the very shallow depth of 1,545 feet. This well has done several things. As a starter its blowing off its valve mussed things up to the point that traffic on the Tampico-San Luis division of the National Lines was suspended for three days following a bad wreck there in which at least one person was killed and several injured. In blowing off the first gate the tools bent the upper joint of casing, it is reported, so that while the second gate has been placed thereon it is at an angle. Meanwhile additional anchor bolts are being placed. The well now is flowing only between 2,000 and 4,000 bbls., these two estimates being the two extremes mentioned by the professionals watching it. It is probably bridged, or it is not—according to the individual viewpoint. Meanwhile the company's No. 6, some 240 feet away has been closed in. The No. 6 was much deeper, having been completed at 2,125 feet, i. e., 580 feet

SKELLY OIL COMPANY

Producers of Crude Oil

Refiners of Petroleum and its products

Distributors of

Better Gasoline

through Skelly Stations in six states

Manufacturers of natural gasoline from eleven modern plants located in Oklahoma and Texas

Tulsa, Oklahoma **Eldorado, Kansas**

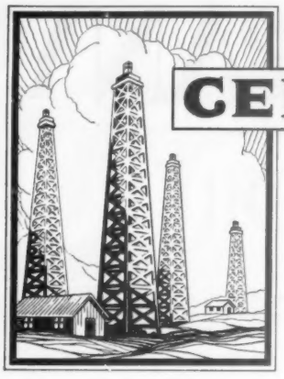
The Cross Cracking Process

The old type cracking processes could only stay on stream 48 hours. The modern Cross Cracking Process is on stream at least 240 hours.

The Cross Process does not have to revert to the dark age of cracking with its short cycle in order to make all products saleable. You had better go forward with the Cross Process than backward with others.

THE M. W. KELLOGG CO.,
90 West St.,
New York City

Branch Offices:
700 Baltimore Ave., Kansas City, Mo.
19th and Harrison St., San Francisco, Cal.
304 Lane Mortgage Building, Los Angeles, Cal.



Use MONARCH
CEMENT
FOR ECONOMICAL CONSTRUCTION

For Better, More Economical Cement Jobs

The judgment of thousands of contractors, construction engineers, and oil companies who use *MONARCH* Cement constantly stand behind you and every job on which you use this cement of unbeatable quality and assured economy!

Use *MONARCH* for

—more securely cemented casings
—cementing surface pipes
—more permanent and steady bases for all machinery.
—more secure rig foundations
—more permanent buildings
—more lasting foundations and floors
—safer, more sure anchoring of guy wire for rigs
—better built rod line posts that "stay put"

For these and other oil field jobs you'll find *MONARCH* guarantees you better work, saves you time and money on first construction and cementing costs and eliminates worry and expensive delays or repairing later.

Save time and money and be sure of cement work that means safety, permanence and economy—use *MONARCH*.

Ask your nearest dealer or write us direct for further information.

THE MONARCH CEMENT CO.
General Offices and Plant:
Humboldt Kansas

MONARCH
THE KING OF PORTLAND CEMENTS
CEMENT

Sales Offices:

Tulsa, Okla.
211 Kennedy Bldg.
Phone 3-0638

Oklahoma City, Okla.
1935 West 11th St.
Phone 4-6813
P. L. Langworthy

difference. Whether the coming in of No. 12 has affected No. 6, or not, remains to be seen. The volume of oil that No. 12 continues making is being picked up from sumps which is all that can be handled now.

In sum: Are this Leoanrd No. 1 Corcovado, originally reported 20,000 bbls., and this National Lines' No. 12, in the latter's right-of-way to the southwest, both big wells that have bridged, or are they pocket wells, that came in big and have quickly dwindled? Possibly a few days more will tell.

March Completions

There were more wells completed during the past month, (March), in Mexican fields than in any one previous month in the history of Mexico. Some 93 holes were drilled to completion, (including some two or three tests abandoned at no great depths), of which 50 were failures and 23 reached the pay, although some were so small they are "pay completions" in an academic rather than an economic sense. The northern fields saw 83 of these holes finished; the southern fields, 10. In the northern fields 20 producers were finished with new production, (practically net), of say 38,070 bbls. In the southern fields, apart from two small strippers that will probably do less than 1,000 bbls., the only other pay completion was Huasteca's, (Mexican Petroleum), No. 44 Tierra Blanca, rated good for a "potential head" of 100,000 bbls., but which has not yet been placed in exploitation hence its actual production under steady exploitation remains to be determined. The last reports from No. 44 state that the closed in well head pressure has reached 1,200 pounds. This is about the highest pressure ever known even in this land (south fields) of high pressures.

Field Operations

While the Corcovado sector of the northern fields is the place of what might be termed the feverish intensity in exploration operations, it is noticeable that in the old Panuco sectors, here and there, some companies are quietly going back trying to locate high spots where small wells might be finished. Of course, this has been going on more or less all the while, but right about now it is even more marked. Thus Mexican Gulf Oil Co. is rigging up for its No. 16 Lopez in the old Panuco; its No. 9 Cruz is drilling at 1,140 feet in blue shale, and it is rigging for No. 2 Esterillos on the south edge of the old field. International Petroleum Co., is rigging for No. 2 Piedras. Transcontinental Petroleum Co. is moving in for yet another test, (No. 20), in the old Barbarena. Credito Petrolero, S. A. is also going into the Piedras for a test; and both the Isleta and Tamante sectors are due for another rig or so in a week or two. Meanwhile the more regular operations in the old Panuco are best reflected by the following La Corona Petroleum Co.'s No. 97 Salvasuchi is drilling in gray shale at 540 feet; its No. 96 Ojital has cemented 6-inch in limestone at 1,400 feet, and its No. 98 there is in gray and pink shale at 210 feet. East Coast Oil Co. has cemented 8-inch casing in its Laguna da la Milpa Nos. 20 and 28 at 1,320 and 1,270 feet respectively, both in gray lime presumably. Gilliam and others' No. 4, Lot 13, Lomas y Llanos, is drilling in the San Felipe around 1,875 feet. Mexican Sinclair Petroleum Corp.'s No. 7 Tananturo is in lime, with a showing of 50 bbls. at 1,900 feet. National Oil Co.'s No. 15 Chijoles is drilling in gray lime at 2,000 feet. Schlaet & Co.'s No. 2-A Vega de Otate is at a nominal depth in shale. Tampascos Oil Co.'s No. 4 Barragan, has cemented 8-inch at 1,008 feet in a shell. The Texas Co.'s No. 9 Cicero, is drilling in gray lime around 1,400 feet and should be cementing soon. Sol Oil Co.'s No. 3 Tamusol is in gray lime at 2,200 feet.

At Cacalilao

In the Cacalilao sector of the northern fields operations follow: La Corona's No. 152, Lot Cacalilao is in gray shale at 1,136 feet; its No. 171, same, is in the San Felipe at 1,205 feet, while its No. 72 is in gray shale at 500 feet. In Lot 4 its Nos. 169 and 170 have each cemented 8-inch at 1,200 feet in the San Felipe. International Petroleum Co.'s operations in Lot 5: Its Nos. 155 and 160 are in white lime at 2,330 and 2,140 feet respectively; its No. 163 is in gray lime at 1,780 feet; its No. 164 is in white lime at 2,150 feet; its Nos. 169 and 170 are in gray lime at 1,860 and 1,735 feet respectively; its Nos. 172 and 174 have each cemented 8-inch at 1,202 feet, in the San Felipe; its Nos. 173 and 177 are in gray shale at 291 and 835 feet respectively, and its No. 184 is in the same formation at 730 feet.

Mexican Sinclair Petroleum Corp.'s No. 99, Lot 2 Cacalilao, is in lime at 1,847 feet; and in Lot 3, its No. 64 is in blue shale at 825 feet, and its No. 93 is shut down for orders at 2,275 feet, probably a failure. In Lot 1, its No. 109 is in the San Felipe at 1,770 feet. Mexican Petroleum Co.'s No. 21, Lot 1 Cacalilao, is in shells at 1,240 feet. New England Fuel Oil Co.'s No. 5, Lot 3 Cacalilao, is in shells at 1,670 feet, making 100 bbls.; its No. 10, same lot, has cemented 8-inch at 1,202 feet in the San Felipe. Transcontinental Petroleum Co.'s operations in Lot 4 follow: Its No. 130 is in shale at 850 feet; its No. 158 is in the San Felipe at 1,650 feet; No. 165 is in lime at 1,880 feet; No. 176 is in shale at 850 feet; No. 177 is fishing parted casing at 800 feet; No. 178 has cemented 8-inch at 1,300 feet in the San Felip; No. 186 is in shale at 385 feet; and in the Paciencia, just north of Cacalilao, No. 25 is drilling in shale at 450 feet; No. 26 is fishing tools at 500 feet; No. 28 has cemented 10-inch in shells at 1,250 feet, and No. 30 is drilling in gray shale at 1,050 feet.

At Corcovado

The most interesting test in Corcovado at this time is Mexican Sinclair Petroleum Corp.'s No. 2, Lot 1, which continues flowing around that 1,000 bbls. from around 1,800 feet. The drill is now 2,095 feet, which is commencing to be deep. Its No. 3 there is drilling in blue shale at 890 feet. Mexican Gulf Oil Co.'s operations in Lot 4 follow: Nos. 23 and 24 are each in the San Felipe at 1,890 and 1,475 feet respectively; its Nos. 25 and 26 have each cemented 8-inch in the San Felipe at 1,217 and 1,202 feet respectively; its No. 27 is drilling in sticky shale at 925 feet. In its Chapacao, its No. 1 is in white lime at 2,220 feet. Transcontinental Petroleum Co.'s No. 1, Lot 6 has cemented 10-inch at 1,200 feet in the San Felipe; No. 2, same, has cemented 8-inch in the same formation at 1,300 feet, and No. 6 is a derrick. Rich Mex Oil Co.'s No. 3, Lot 2 will run 6-inch at 1,865 feet in the San Felipe shales; and it will recement 8-inch in its No. 4 at 1,937 feet. Cosmos Oil Co.'s operations in Lot G: Number 7 is in gray lime at 2,000 feet; No. 8 has cemented 8-inch in the same formation at 1,140 feet; No. 15 is in the same at 1,700 feet, and No. 30 is 1,250 feet, same. The rest of the tests of this company have the same status as at last reported. La Corona Petroleum Co.'s No. 8, Lot 6, is in brown and gray lime at 1,700 feet; its No. 6, Lot 11, has cemented 8-inch in the San Felipe at 1,205 feet, making especially fast time to this depth. Its No. 7 there is rigging.

Ebano and Miscellaneous

In the Ebano sector, Mexican Petroleum Co.'s No. 10 Chapacao is drilling in gray lime at 1,420 feet; its No. 22 is in shale and shells at 1,215 feet, and it has six more tests rigging in this division. Its No. 5-A Mendez is drilling lime at 1,720 feet; its Nos. 5 and 6 San Pedro are in blue shale at 1,245 and 450 feet respectively. In Chijol, its No. 30 is in gray shale at 780 feet.

In the Marland Field, Cia Franco Espanola, No. 23 Limon is in lime at 1,985 feet; its No. 24 is in gray shale and shell at 1,395 feet.

At Topila, East Coast Oil Co.'s No. 508 Lot 19 Tamboyoche, is in brown lime at 2,278 feet. Credito Petrolero's No. 15, Lot 10 Paciencia de Aguacate, is in white and brown lime at 2,211 feet. Williamson and others' No. 8, Lot 5, Paciencia de Aguacate, is at a nominal depth in shale. Cia Pet. Financiera's, No. 1, Lot 9 Paciencia de Aguacate, is shut down

Tidal Refining Company
Tidal-Western Oil Corporation

Subsidiaries Tidewater Oil Company

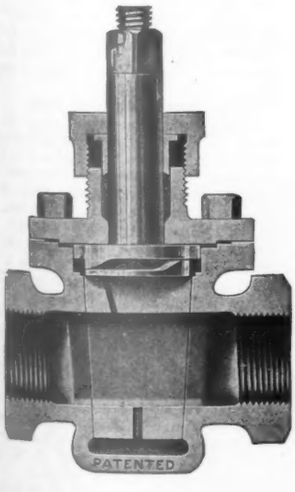
GENERAL OFFICES: TULSA, OKLA.

REFINERIES: DRUMRIGHT, OKLA., AND BURKBURNETT, TEXAS
NATURAL GASOLINE PLANTS IN KANSAS, OKLAHOMA AND TEXAS
MANUFACTURERS AND MARKETERS

OF

REFINERY PRODUCTS AND NATURAL GASOLINE

THOUSANDS OF THESE VALVES
Are In Daily Use on Gasoline and Refined Oil Lines



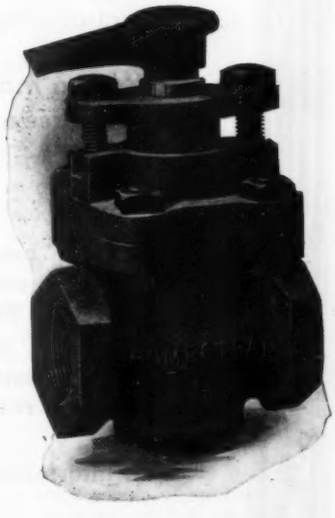
The Fig. 17 valve is recommended for the service. These valves are especially ground and tested for gasoline service. No Lubricant is necessary,—users prefer them without.

A record of 15 years service is the report of a large user, without leakage or repairs. Used on loading racks for gasoline, kerosene and distillate.

1. They open and close with a quarter-turn.
2. They are ground to hold gasoline (always specify.)
3. They are equipped with the Homestead cam which forces the plug to the seat when closed.
4. Heavy substantial construction to withstand all external and internal strains.

Why not make them your standard equipment as several large oil companies have done and solve one troublesome problem right now?

The catalog lists many valves of service in the Refinery. Send for a copy.



HOMESTEAD VALVE MANUFACTURING COMPANY, Homestead, Penna.

HOMESTEAD

Walter C. Teagle

Says:

"Most of our troubles are of our own making."

With Garbutt Rod

He said this in one of his recently published addresses.

If he was referring to everlastingly pulling wells and cut oil he could not have said anything more true. There is no necessity for frequent rod pulling nor for cut oil. Simply install a

"Tex"

Trade Mark Reg. U. S. Pat. Off.

plunger self-packing

Working Barrel

and your pumping problem is solved.

Put a "Tex" in your worst well and you will prove that Mr. Teagle is right. An operator using a "Tex" says this:—

"Let a man try one and his lease will soon be all "Tex"—

and he knows.

The "Tex" has no cups. It does not cut oil. It is self-packing. It pumps floating sand. Eliminates frequent rod pulling. Has large capacity. It is strong in construction. It is up-to-date in every respect.

Full information on request.

Manufactured solely by

Bradford Motor Works

BRADFORD, PA.

Branch Factory & Warehouse:

TULSA, OKLA.

for orders at 2,300 feet which spells, evidently, a failure.

In El Barco, Mexican Gulf Oil Co.'s Nos. 68 and 69 are in gray limestone at 2,295 and 1,855 feet respectively; and its No. 70 has cemented 8-inch in the same formation at 1,339 feet.

In the Caracol, Venable and others' No. 25 are in white lime at 2,535 feet.

EAST CENTRAL TEXAS

(Continued from Page 46)

Smith farm, Moore survey and the test is shut down at that depth. E. C. Nelson drilled to 3,000 feet and shut down on the Letters farm, Acosta survey, and the Beverly Oil Co. went to 3,420 feet and shut down on the Ashley farm, Robertson farm, Robertson survey. Garland P. Fallis lost a stem in the hole at 1,620 feet and the Beverly Oil Co. had a fishing job at 1,380 feet in No. 2 Buer, Sheilds survey.

In the Old Fields

In the Wortham Field, Freestone and Limestone counties, the work has settled down to a routine. The properties of the Humphreys Boyd Oil Co., recently bought by the Pure Oil Co., are holding up well as producers of oil.

Bearman & Kensey abandoned the location for No. 1 Steadman & Mallard on the Wortham townsite but the Humble Oil & Refining Co. have derricks up for No. 1 Oscar Pope, a townsite location, and for No. 3 Crouch, also in the town of Wortham.

The Humble Oil & Refining Co. got a 700-bbl. well in No. 14 Ella Dodd, Ritchie survey, from sand at 2,974-3,028 feet, and had pipe set for Nos. 17 and 18 and liner set in No. 13. The same company's No. 6-B N. H. Lindley, Longbotham survey, started at 275 bbls. from sand at 2,948-92 feet. The Magnolia Petroleum Co.'s No. 1 Stroud, Varela survey, Limestone County, Groesbeck district, Limestone County, was a 1,500,000-foot gasser at 2,890-2,910 feet and Stroud and others' No. 1 Stroud, same survey, was good for 1,500,000 feet of gas at 2,956-69 feet.

The Magnolia Petroleum Co. had started up on No. 1 Kennedy, Varela survey, The Bains Creek Oil & Gas Co. had found no Austin chalk down to 2,600 feet. The same company drilled a 2,250,000-foot gasser in No. 1 Arnet, Varela survey, at 2,883-95 feet. Guffey & DeArmond found chalk at 2,257 feet and were drilling on it at 2,340 feet in No. 1 Welsh, Varela survey. The Pure Oil Co.'s No. 1 Webster, Jackson survey, had reached a depth of 3,400 feet. Hurdleston and others have commenced drilling No. 1 Gill, Lauderdale survey.

In the Powell Field, much attention is being paid to the shallow sand. There are many idle contractors in the field, some of whom are willing to take chances with the operator and drill for an interest, while others have made their drilling charges attractively moderate. The result is a number of new operations destined for the shallow horizons down to 1,600 feet. Among those now drilling or preparing to test the shallow sands are Collins and others in No. 6 Hill; Humble Oil & Refining Co., No. 33 Humphries; J. K. Hughes Development Co., No. 2 Hill and 10-A Hill; The Oxford Oil Co., No. 1 Hill; Stroube & Stroube, No. 1-B Hill; Gulf Production Co., No. 7 Smith; George Kent, No. 1 G. H. Kent; Humble Oil & Refining Co. Nos. 1, 2, 3 and 4 W. Smith, Havens survey; and Nos. 3, 7, 11, 12, 13, 14, 15, 16, R. I. Kent, Smith survey; Pure Oil Co. No. 15 R. I. Kent, Smith survey; Skelly Oil Co. No. 1 J. Bailey, Rahm survey; E. L. Smith Oil Co. No. 1 J. M. Moore, Myers survey; Garland Kent, No. 2 Bressie, Szenasy survey.

The J. K. Hughes Development Co.'s No. 11 Alexander, Smith survey, was a 3,000,000-foot gas well at 1,246 feet. It was drilled to 1,400 feet. The Pure Oil Co.'s No. 14 R. I. Kent, started at 18 bbls. at 1,496-1,518 feet, total depth 1,644 feet. Garland Kent's No. 1 J. Bressie, Sweeney survey, showed a 5-bbl. production in sand at 1,003-15 feet. It was drilled to 2,000 feet and plugged back.

In the Currie district, the Moore Brothers abandoned No. 1 Quimby, Anderson survey, at 2,035 feet.

GULF COAST

(Continued from Page 38)

Oil & Refining Co.'s No. 28 Herbert is a 25-bbl. pumper at 2,295 feet. The Barclay Oil Co.'s No. 3 Rogers was abandoned at 825 feet.

The Humble Oil & Refining Co.'s No. 24 Herbert is a derrick. The Sun Oil Co.'s No. 62-B and E is at 1,206 feet. The Lake View Oil Co.'s No. 42 Hardin is around 1,355 feet, and Yount-Lee Oil Co.'s No. 1 Ambrose at 2,809 feet. The Lake View Co.'s No. 1 Jackson is fishing, as is the Gulf Co.'s No. 27 Hardin-Tarver. The Thies Oil Co.'s No. 1 Jackson is at 1,455 feet.

In the Batson Pool, the Ada Bell Oil Co.'s No. 93 Davis bailed dry at 800 feet, and No. 94 is bailing at 400 feet. Anderson & Munson's No. 3 Hodges will pump at 3,060 feet.

The Acorn Oil Co.'s No. 3 Brice is at 564 feet. The Deutser Oil Co.'s No. 11 Trustee is at 1,080 feet, and the Paraffine Oil Co. has a location for No. 40 fee.

In the Saratoga Field, the Rio Brave Oil Co.'s No. 1 Fountain is drilling around 2,150 feet; No. 2 1,400 feet; No. 1 Yount-Lee Parrish 2,650 feet. The Weldon Oil Co.'s No. 5 Bradley is rigging up to work over. The Gulf Production Co.'s No. 1 Porch Wells and others' Fee "B" is drilling around 1,780 feet.

Brazoria County Pools

At West Columbia, the Humble Oil & Refining Co.'s No. 15 T. & W. is pumping 15 bbls. at 1,370 feet, and No. 1 Wilson is bailing at 3,300 feet. No. 12 T. & W. is drilling at 455 feet. The Hyde Production Co. has a location for No. 1 Lee. At Damon Mound, Hamm & Co. is resetting strainer in No. 3 Bryan at 1,500 feet.

Other Pools

At Spindletop, the Eddy Oil Co. got a 100-bbl. well in No. 7 Lone Acre at 835 feet. The Baker Oil Co. abandoned No. 1 Trembly at 960 feet. Holliday and others' No. 18 Hogg-Swayne is drilling at 433 feet.

The Southern Petroleum Co. worked over some old wells in the Humble Pool, restoring them to the production column and is now rigging No. 43 on the Landslide lease. Other operators are working over some of their old wells.

In the Markham Pool, Stewart and McCarthy's No. 1 Cherry is drilling around 1,820 feet in shale. The Ryeade Petroleum Corp.'s No. 2 Gray is deepening below 3,450 feet.

South Louisiana Pools

The Vinton Petroleum Co.'s No. 40 Gray in the Vinton Pool is bailing at 2,400 feet. Its No. 13 Rescue is at 3,050 feet, and No. 15 Vincent below 3,060 feet. The Just Oil & Refining Co.'s No. 2 Weeks is shut down at 2,000 feet, and No. 2 Lyons is rigging to sidetrack. The Texas Co.'s No. 2-A Gray is at 3,100 feet. The Edgerly Petroleum Co.'s No. 3 Vincent is setting 6⅝-inch casing at 3,200 feet. Wilson-Broach Co.'s No. 6 Parks is at 2,798 feet. The G. F. B. Co.'s No. 8 Lucky Four lease is drilling around 1,800 feet. The Gulf Refining Co.'s No. 62 G. N. G. is at 2,534 feet. No. 38 Vincent is around 2,755 feet, and No. 35 Star is drilling at 2,433 feet.

In the Edgerly Pool, the deep test of the Roxana Petroleum Co.'s No. 1 Hunter is drilling below 4,780 feet. G. W. Gray is sidetracking No. 11 Lilliard.

In the Jennings Pool, the Gulf Refining Co.'s No. 36 Jennings-Clement is at 2,145 feet. The Coastal Fuel Oil Co. has started drilling No. 89 fee. The Foxman Oil Co.'s No. 1 Trucel is drilling at 2,695 feet. The General Production Co.'s No. 5 Fontentot is working over.

In the Lockport district, near Lake Charles, Calcasieu Parish, the Vacuum Oil Co.-Gulf Oil Co.'s joint No. 2 Miller is drilling below 3,900 feet. No. 3 Miller is at 2,865 feet, and No. 1 Farquahar is deepening at 2,540 feet. To the south of these, the Marland Oil Co.'s No. 1 is drilling below 4,440 feet.

The Gulf Production Co.'s No. 8 In-

Oil State Gasoline Company

MANUFACTURERS AND MARKETERS

OF

Blended Natural Gasoline

We are one of the oldest and most reliable uniform gasoline blenders in the industry.

407-12 Kennedy Bldg. TULSA, OKLA.

KENNEDY

Fig. 58

Order some Kennedy Malleable Iron Fittings for trial. You will find them satisfactory in every way.

Standard Gate Valves

You can safely standardize on Kennedy Valves. For almost half a century they have been demonstrating their exceptional efficiency and durability in refineries and industrial plants all over the country.

Ample passageways, accurate machining, generous proportions, carefully selected and tested materials—these are some of the factors that assure permanent satisfaction with Kennedy Valves.

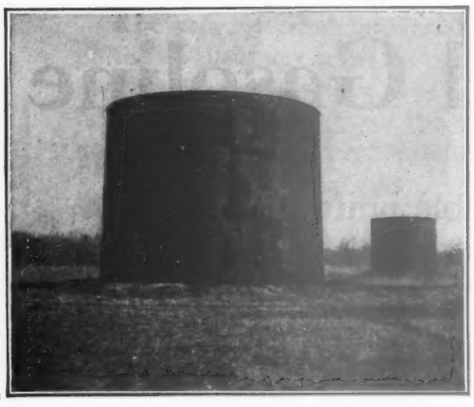
The big Kennedy line of over 4600 different types and sizes of valves and fittings provides an exactly suitable selection for practically every service on oil, water, steam, air, gas or chemical lines. The Kennedy catalogue describes these valves fully, explains their points of special goodness, and will help you make a selection for trial. Send for a copy.

THE KENNEDY VALVE MFG. CO., ELMIRA, N.Y.

Branch Offices and Warehouses—
New York City: 128-132 White St.
Chicago: 228 N. Jefferson St.
Boston: 47 India St.
San Francisco: 448-450 Tenth St.

Sales Offices—
SALT LAKE CITY, EL PASO, SEATTLE, KANSAS CITY, MO., LOS ANGELES, MIAMI, CLEVELAND, PHILADELPHIA.

Interchangeability of parts meets extra-capacity demands



When the necessity of enlarging the capacity of Maloney Tanks arises, it is quickly and easily accomplished. Parts on Maloney Tanks are interchangeable and, simply by adding standard parts, they can be built to extra-capacity dimensions to meet requirements.

Maloney Tanks are shipped knocked-down and ready for quick erection, in capacities ranging from 12 barrels to 3,000 barrels. For years, their superior vapor and gas tight construction, and rugged strength attributable to Keystone Copper Steel, have earned for them the title of "the world's best bolted steel tank."

"Alone in Quality"

MALONEY TANK MFG. CO.
Tulsa, Oklahoma

We now furnish "Buck" type vacuum-pressure valves and vacuum Breakers

MADE OF KEYSTONE COPPER STEEL

12 to 3,000 Bbls. Capacity

MADE OF KEYSTONE COPPER STEEL

Prompt, Dependable Export Service

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MALONEY ALONE

Lockhardt has spudded No. 4 Derbyshire, SE cor. NE SE Section 13-22-10. The Sinclair Oil & Gas Co. has the rig up for No. 15 Browning, NE cor. NW SE Section 19-22-10.

The Sinclair Oil & Gas Co. has completed No. 10 Browning, SW cor. NW SW Section 20-22-10. Sand was 2,270 to 2,328 feet, and the well is reported at 250 bbls. The Sinclair Oil & Gas Co. is spudding No. 12 Browning, SE cor. SE Section 19-22-10. The Sinclair Oil & Gas Co. has also spudded No. 13 Browning, SW cor. SW Section 20-22-10.

Titus & Norris have completed No. 1 Prather, NE cor. NE Section 30-22-10, which is wabbing 600 bbls. from sand 2,378 to 2,449 feet. Titus & Norris are drilling at 1,170 feet in No. 2 Prather, CEL NE NE Section 30-22-10.

Cowley County

The Trees Oil Co. has completed No. 2 Shaffer, SW cor. SE NE Section 10-31-3. Sand was 3,007 to 3,031 feet; the well was shot with 30 quarts and swabbed 220 bbls. the first 24 hours. vincible, on the southwest side of the dome at Blue Ridge, Fort Bend County, is flowing 400 bbls. at 2,635 feet.

Air compressors are being moved from the Mexia and Powell fields for installation in the South Liberty Pool.

Operations at Semi-Defined Domes

S. J. Hindman's No. 1 Collier, on the east side of the dome at Barber Hill in Chambers County, is drilling below 3,255 feet.

Brazoria County—At Stratton Ridge the Stratton Oil & Gas Co.'s No. 16 Dannebaum, drilling at 875 feet. Bryan Production Co.'s No. 1 Chester at Bryan Heights, below 3,510 feet.

Jefferson County—At Big Hill, Houston Oil Co.'s No. 1 Sun-Davis, drilling at 1,635 feet; No. 10 Pipkin below 2,500 feet.

Harris County—At Hockley Dome, The Texas Co.'s No. 1 Warren, drilling 3,400 feet; No. 3 below 980 feet.

Matagorda County — At Shepherd Dome, Marland Oil Co.'s No. 1 Murphy, drilling below 4,925 feet. Shepherd Mound Oil Co.'s No. 1 Hawkins, an offset, shut down at 1,400 feet.

Wharton County—At Bling Dome, Gulf Production Co.'s No. 3 Felder, reaming at 3,200 feet, total depth of the hole being 3,945 feet. No. 1 Hackstedt drilling at 2,235 feet. The Texas Co.'s No. 1 Taylor around 565 feet.

Galveston County—At High Island, Gulf Producing Co.'s No. 2 Smith fishing at 3,200 feet. The Sun Oil Co.'s No. 3 Dunham started drilling.

In addition, a number of deep tests and formation tests are drilling in various counties within the Coastal Plains region of both Texas and Louisiana, following exploration work made by the use of the seismograph and torsional balance method of locating saline domes. No production has been developed around any of these discoveries yet, but leasing continues active and more formation tests to be drilled with gasoline driven rotary outfits are scheduled. The leases are taken with a provisional clause that provides, or permits exploration work with the instruments and if no indications of salt are found, the leases are to be surrendered. A nominal figure is paid for this privilege.

In Fort Bend County, the Gulf Coast Development Co.'s No. 3 Vogel, mapped Erie Townsite, was abandoned at 5,374 feet. It is the deepest test in the county. No. 4 Vogel is shut down at 1,300 feet. The Gulf Production Co.'s No. 4 Moore is around 700 feet and Pathfinder Oil Co.'s No. 1 Pinkey 1,300 feet. The Rycade Petroleum Co.'s No. 1 Nash at Wisdom Dome is at 3,200 feet with No. 2 Nash at 4,835 feet. The Marland Oil Co. is drilling a formation test.

In Jefferson County, the Paggi Oil Co.'s No. 2 Wilson is at 1,010 feet.

In Harris County, the Rycade Oil Co. has started No. 1 Rosenthal, in the Green Bayou section, 8 miles east of Houston. Leasing has been active in the district between Little York and Aldine, north of Houston, most of the major companies being represented on the records.

In Hardin County, the Texas Little Farms Co.'s No. 1 Hawley is below 730 feet.

In Orange County, the Republic Production Co.'s No. 1 Stark is drilling around 1,000 feet.

In San Jacinto County, C. O. Fleming and others' No. 1, in the northern part of the county, is around 715 feet.

In Montgomery County, Lee F. Sprague and others, of Hartford City, Ind., has a location for No. 1 Hall, near Willis.

In Brazoria County, locations have been made by J. C. Irwin for No. 1 Gales and by Taylor and others for No. 1 Stratton.

In Angelina County, F. Heine's No. 2 Henderson is drilling at 255 feet.

KANSAS FIELDS

(Continued from Page 36)

The Trees Oil Co. is building the rig for No. 3 Shaffer, NW cor. SE NE Section 10-31-3. The Trees Oil Co. is also building the rig for No. 2 Smith, NW cor. NE SE Section 10-31-3.

The Arkansas Fuel Co. No 1 NE cor. SW Section 26-31-3 is dry and abandoned at 3,420 feet.

Roth & Mission have completed No. 1 Coffey, NW cor. SE NE Section 30-31-5. Sand was 1,682-92 feet, and the well is making 8,000,000 gas.

In the Biddle Pool Marland Oil Co. and Neely are drilling No. 2 Rockwell, SE cor. SW SE Section 13-32-4, at 2,030 feet. Southwestern Petroleum Co.'s No. 1 Spangler, SE cor. NE NW Section 13-32-4, is drilling at 1,535 feet. The Arkansas Fuel Co.'s No. 4 Crotsley, NW cor. SW SW Section 7-32-5, is drilling at 1,473 feet.

East of Winfield the Marland Oil Co. has a failure in the pool opened up some time ago by T. B. Slick. The dry hole is No. 1 Nevitt, NE cor. SW SW Section 30-32-3; the total depth is 3,528 feet.

Northeast of Rainbow Bend the Roxanna Petroleum Corp. has a rig on the ground for No. 1, SW cor. SE NW Section 21-33-2.

In the Graham Pool, the Marland Oil Co. has completed No. 6 NE cor. SE NE Section 9-33-3. Sand was from 2-541-54 feet, and the well is estimated good for 130 bbls. It is being tubed to pump. The Marland Oil Co. is building the rig for No. 3 Bowers, SE cor. SW NW Section 10-33-3. The Marland Oil Co. has spudded No. 5 Bowers, NW cor. SE NW Section 10-33-3. The Marland Oil Co.'s No. 5 Wright, SW cor. NE NW Section 10-33-3, is drilling at 425 feet. The Marland Oil Co. is building the rig for No. 1 Wright, SE cor. NW NE Section 10-33-3. The Roxana Petroleum Corp. is building the rig for No. 5, NW cor NE SW Section 10-33-3.

Rainbow Bend Pool

Waite Phillips, Independent Oil & Gas Co. and Marland Oil Co. have completed No. 3 Backus, SW cor. SW NW Section 20-33-3. Top of sand 3,230 feet; first oil 3,248 feet; first flow 3,256 feet; total depth 3,257 feet on top of chat. The well is good for 100 bbls.

The same interests' No. 4 Backus, NW cor. NW Section 20-33-3, was completed for 75 bbls in sand 3243-64 feet. Same interests' No. 14 Westerman, NW cor. NE NW Section 20-33-3, is drilling at 940 feet. The same interests have spudded No. 2 Caldwell, NE cor. NW NW Section 20-33-3.

Southwest of Rainbow, the Marland Oil Co. has a dry hole in No. 1, SW cor. NW Section 14-34-2. Total depth is 3,650 feet.

Elwell and others have a rig up for No. 1 Baird, SE cor. SE SE Section 17-34-3.

Sedgwick County

Whitney and others have a rig on the ground for No. 1 Young, NE cor. SE Section 7-26-2.

Allison & Fitzwilliams' No. 1 Webb, CSL SW NE NE Section 21-29-3w, is spudded and shut down.

Butler County

Dingee and others have a rig on the ground for No. 1 Fisher, CSL SW SE SW Section 31-26-6.

The Blue Stem Oil Co.'s No. 3 McLean,

CNL SE SW Section 5-27-6, is estimated at 100 bbls. from sand 2,718-38 feet.

Branson and others are rigged up and shut down in No. 1 Ecker, NE cor. SE NE Section 5-27-6.

Morris County

Rock Creek Oil & Gas Co. No. 1, CNL SW SE Section 24-16-9, has 1,000,000 gas at the shallow depth of 240 to 254 feet, and a hole full of water at 250 to 255 feet. It is being drilled ahead.

CALIFORNIA

(Continued from Page 42)

Oil Co. between 5,283 feet and 5,288 feet. Samples reacted favorably to the other test and, while the formation appeared to be favorable, the next 100 feet will decide the fate of this outpost. This well is being watched very closely because of a possible field extension.

Santa Fe Springs registered a slight increase in production during the past week when compared with the output during the period just preceding. The production of this district has practically reached bottom and, although it will undoubtedly decline in the future, the drop will probably be a gradual one. Improved pumping equipment, including long stroke pumps and air lifts, are temporarily offsetting the normal decline at present.

Whittier

The Standard Oil Co. has not yet picked up a deep sand in No. 21 Home at Whittier and, unless something develops very shortly, very little hope can be held up for a successful completion. A showing at 3,992 feet, however, will be tested out in the event that deep production is not secured. The Central Oil Co. picked up a nice looking sand in No. 74 at 1,695 feet but it is not believed that a production test will be made. The St. Helens has given up the attempt to secure deep production in No. 3 Anaheim, in the Coyote Field, at 4,225 feet and will back up to around 3,200 feet and finish this hole in the upper sands. The Standard does not seem to be making very fast headway in the four holes which the company is drilling in this area. No. 40 Emory is still in a bad shape with a fishing job which developed at 4,030 feet. On the Murphy lease, well No. 100 remains cemented at 4,163 feet, while No. 101 is making a water test at 4,360 feet. No. 102 is drilling ahead slowly at 4,265 feet. No. 1 Tuffree of the Union at Richfield has just passed the 4,700-foot level but the only showings found to date were around 4,200 feet.

The Interstate Oil Co. has quitclaimed all properties leased from the Irvine Ranch Co. at Newport and a large part of the property is being taken over by a newly organized company headed by H. E. Becker of Brea. Very little oil was produced in the Newport section during the past week and, in view of the present heavy State production, this field will probably lie dormant for some time. It is surprising to note the amount of work being done, however, in view of the unsatisfactory results obtained to date.

Seal Beach

The Associated has just about finished rigging up No. 1 Hellman at Seal Beach and should spud in within the next few days. Construction work has been rushed ahead quite rapidly and, barring unforeseen mechanical troubles, will be pushed to completion as quickly as possible. The Shell did not make any footage in No. 2 Bryant, drilled to 4,409 feet, as the crew is engaged in a cleanout job around 3,200 feet. No. 3 Bryant is drilling ahead in a sticky shale at 4,236 feet. No. 1 Bryant is producing 65 bbls. of oil, while No. 1 Bixby has been plugged back from 6,142 to 4,554 feet, at which depth a production test will be made before abandoning.

Miscellaneous Drilling

The Associated's No. 101 Fox, in the Beverly Hills area, showed a few minor colors while drilling ahead at 3,475 feet but the showing was not sufficient to justify a test. The hole has only shown a little oil but the gas, which is increasing with each foot drilled, is encouraging. This outpost may result in an extension of the Beverly Hills Section of the old Salt Lake Field. The Marland has filed an abandonment notice on No. 1 Cerritos, it Davidson City wildcat between Long Beach and Dominguez, at 4,500 feet. The action of the company is not surprising and has been anticipated for some time, in fact very little justification can be found for the drilling of this hole at all. The Winwell Oil Co.'s No. 1 Dome at Hawthorne, drilled to 5,586 feet, resulted in considerable speculation during the past week as a result of oil in the sump and mud box. When visited, the test was deserted and no accurate information could be obtained of the conditions prevailing but, judging by the oil found, it is presumed that the company circulated with oil and did not produce it from the hole, as was generally supposed. The Manhattan Pacific Oil Co. is just drilling out its cement job at Hermosa Beach and, if a shut-off has been effected at 4,165 feet, drilling will be resumed. This test showed a few colors at approximately this point.

The Shell reports 3,400 feet of hole in No. 1 Stubbs, at La Mirada, but no favorable indications have been noted to date. No. 1 Hadley, of the Standard, at Rivera, is going ahead at 2,520 feet in a hard sandy shale, while the same company's No. 1 Irvine, at Paulerino, has reached a depth of 2,300 feet. A tar showing was found at 2,106 feet. The Associated is getting quite deep in its Newhall wildcat and this 4,500-foot hole does not look very encouraging. The Union is drilling ahead in a gray sand at Saugus, a few miles away, and has just passed the 2,110-foot level. No. 1 Newlin, of the same company, at Ocean Park, is in a sandy shale at 3,780 feet. Neither of the Standard's two San Emidio wildcats in the San Joaquin Valley has shown any promising indications to date. A 5,135-foot hole is credited to the company on Section 28-11-22, while the crew on Section 5-10-22 is preparing to drill out a cement job at 2,254 feet. The Kern 29 Oil Co. has just spudded in its Commanche Point test, Section 29-31-30, and is drilling ahead around 250 feet.

The Chanslor-Canfield Midway Oil Co.'s Delano wildcat, on Section 20-25-27 is in a hard sand at 3,655 feet. The Union ran into a fishing job at Rio Bravo at 6,053 feet and, because of the depth, this wildcat may be abandoned. The Main Oil Co. discontinued drilling at Wasco after making an even 1 mile of hole and will make a production test. A few showings have been noted from time to time but it is not likely that the company will secure production. The General Petroleum is going ahead in the Snowolene Oil Co.'s Jacalitos Dome test, Section 22-21-15, at 4,307 feet, with the expectations of being obliged to drill quite deep before any hope of production can be expected. The company took this hole over when the Snowolene was beset with financial difficulties and, in addition to benefiting from any production developed on this lease, the General Petroleum will automatically prove up its surrounding leases. A successful completion in this area would be surprising. No. 1 Oschener, in the Kettleman Hills, is drilling ahead at 5,355 feet, and although the General Petroleum has nothing promising to report at present, the hole is in good shape and something may be picked up at a later date. Marland's test on Section 12-22-17, is standing cemented at 4,949 feet.

E. J. Miley picked up an unusually good looking sand in No. 1 Casitas, Section 7-3-23, in Ventura County, northwest of the Ventura Avenue Field, at the unusually shallow depth of 355 feet. Miley is coring ahead solidly at present and, if the sand found is of sufficient thickness will undoubtedly put the hole on a production test. No. 1 McFarland, of Oak Ridge Oil Co., is drilling ahead in a brown shale at 4,955 feet but, because of the depth, this Ventura wildcat does not look any too promising.

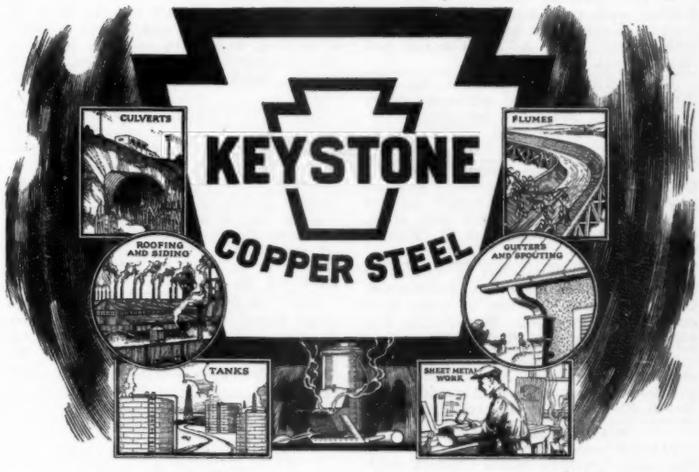
SUPERIOR TO TEST ALASKA

SEATTLE, Wash., April 18.—A contract has been signed by Superior Oil Co. for leasing 12,800 acres of land in Alaska, on which development work is to be started immediately, announced J. W. Cord, en route to his home in Alaska.

KEYSTONE COPPER STEEL

KEYSTONE

Rust-resisting Copper Steel



Gives Superior Service and Lasting Rust-resistance

For Tanks

Ask your manufacturer to supply you tanks made of Keystone quality. It is an alloy made by the addition of a certain percentage of Copper to well-made Steel, thereby greatly increasing its lasting qualities under actual service conditions. Keystone is unexcelled for roofing, siding and construction purposes, as well as for culverts, flumes, tanks, barrels, and all oil country uses. Sold by leading metal merchants.

The most convincing testimonial of the merits of Keystone quality are the important interests who use this material:

Important railroads use Keystone for car roofs and new car construction.

The U. S. Reclamation Service, the U. S. Forestry Service, and Bureau of Public Roads use Keystone for culverts and flumes.

Keystone quality is used by leading tank and barrel manufacturers.

Prominent septic tank and vault makers use Keystone for greater durability.

Successful engineers, contractors, and builders use Keystone for greater rust-resistance.

Leading burial vault and casket manufacturers use Keystone because it assures increased permanence underground.

Keystone demonstrated its excellence in the service tests of the American Society for Testing Materials.

Users everywhere favor Keystone for purposes demanding reliability and lasting service. Send for booklets.

Apollo

GALVANIZED SHEETS

Recognized as the standard of quality since 1884. APOLLO-KEYSTONE Galvanized Sheets with the copper steel alloy base are unequaled for Culverts, Flumes, Silos, Roofing, Siding, Spouting, Gutters, Cornices and all forms of exposed sheet metal work demanding superior rust resistance. Write for Apollo booklet.

Tin Plates

High grade roofing plates, carefully manufactured in all details. Also American Coke and Charcoal Bright Tin Plates.

Black

SHEET PRODUCTS

American Bessemer Steel Sheets, American Open Hearth Steel Sheets, Keystone Copper Steel Sheets, Automobile Sheets—all grades. Special Sheets for Stamping, Electrical Sheets, Stove and Range Sheets, Japanning and Enameling Stock, Steel Barrel and Keg Stock, Ceiling Sheets, Black Plate, Etc., Etc.

Manufactured by

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFFICES

Chicago Cincinnati Detroit New Orleans New York Philadelphia Pittsburgh St. Louis

Export Representatives: U. S. Steel Products Company, New York City

Pacific Coast Representatives: U. S. Steel Products Company, San Francisco, Los Angeles, Portland, Seattle

25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

CLASSIFIED WANTS

MAIL your advertisement now. It will be published next week. Cash with order.

LEASES—PRODUCTION

WILL TRADE close-in acreage to drilling well, good structure, Greenwood County, Kansas, for use of 6, 8 and 10-inch casing. Box A-727, The Oil and Gas Journal, Tulsa. Okla.

JEFFERSON COUNTY, Kansas, have three to four thousand acres on structure for good test. For information address John J. Freeland, Valley Falls, Kansas.

PROMOTERS and Bargain Hunters: Owing to illness will sacrifice two oil producing properties in shallow field of Kansas. Will pay dividends from start. Write Dr. S., 210 West 11th St., Kansas City, Mo.

WILL TRADE interest in well to be drilled on good structure, Greenwood County, Kansas, for use of large Star or National machine. Box A-726, The Oil and Gas Journal, Tulsa, Okla.

CHOICE LEASES on Pecos Valley structure, Southeast New Mexico; 10 and 40-acre tracts. J. P. Alexander, 760 Gas & Electric Bldg., Denver, Colo.

WATCH MISSISSIPPI

She has more potential oil possibilities than any Southern State. Where wildcatters will get greatest returns on investments. Can supply blocks of acreage on geological structure that will bear closest scrunity. For expert advice and aid address.

R. S. WITHERS
418 Edwards Hotel Jackson, Miss.

FOR SALE—Ten thousand acres in Grant County, Oklahoma, or will let half of it for a deep well. Wm. C. Uphoff, Melba Hotel, Blackwell, Okla.

LIBERTY COUNTY, Texas, Hull Oil Field; Acreage for lease in South West part of field, half mile from recent 5,000 bbl. well. Owner, Box 27, South Orange, N. J.

ONE HALF interest in large acreage, in well defined structure in Montana, for drilling test wells, No. 1 report by reliable geologist. Write W. McKenna, Three Forks, Mont.

BLOCK—Have block leases three thousand acres near Chickasha, Okla., world's greatest gas field, oil usually found in proportion, located on exceptionally well defined closed structure, give three-fourths of this acreage for well. Will stand acid test of most competent geologist. Also leases and royalties in best fields at very reasonable cost. Highest reference furnished. Midcenter Development Co., 418 First Nat'l. Bldg., Chickasha, Okla., Grady County.

DRILLING CONTRACTS proven and semiproven; on wonderful structure; in Amarillo Field. 320 to 50,000 acres; ½ mile to 3 miles from big producers. Good geological contour in Hutchinson, Carson Moore and Roberts Counties, Texas.

R. P. O'GRADY
Old Postoffice Bldg. Amarillo, Tex.

FOR SALE—30,000 acres leases in Allen, Monroe, Barren County, Ky., and Clay and Macon County, Tenn. Cheap rentals. For prices, write W. S. Silvers, Marion, Ind.

ARTESIA, New Mexico, Oil Field. Have sereval proven tracts within ¼ to ½-mile of best producers, Eddy County, Township 18 south, Range 28 east, on which I will make attractive drilling propositions. So far 18 good producers, no dry holes in this area; high gravity oil; shallow depth. Address Wm. Farley, Box 36, Denver, Colo.

FOUR THOUSAND acres near the heart of the Amarillo oil field for a test well. Well defined structure. Address Willis Price, Pampa, Tex.

FOR PRODUCING royalty inside or wildcat acreage, drilling block or contract. Box 624, Artesia, N. M.

I OWN 2,480 acres on structure, San Juan County, New Mexico. Will give entire block to operator on royalty basis who will agree to start drilling by June 1. C. A. Lucas, Farmington, N. M.

LEASES—PRODUCTION

FOR SALE—530-acre stock farm well improved, with $3,200 federal loan, in 7000-acre oil block and within 8 miles of drilling well. $16 an acre, terms to suit, business reason for selling. Will Swank, Rock Island, Colorado County, Texas.

HAVE SEVERAL pieces of flush and settled production for sale in Wichita Falls district. Prices very reasonable and terms can be arranged if necessary. Address R. L. Steiner, P. O. box 1144, Dallas, Texas.

FOR SALE or lease, 360 acres land in Greer County, Oklahoma, for actual oil production. Whole or part, write. Owner T. R. Jackson, 201 Foster Ave., Rockford, Ill.

5,000 ACRES—Five-year leases with small rental, some of it adjoining production, drilling wells and pipe line. Asphalt drive to and from leases. L. W. Preston, Glasgow, Barren County, Kentucky.

J. F. MARION COMPANY
Magnolia Building
Dallas, Texas
Buys and Sells
Texas Royalties
"Ask Us First"

ROYALTY
"Buy from the owner"

Owner will sell one-half perpetual royalty on lands located in active territory, between two drilling wells. Twenty acres or more price $2.50 per acre. Terms if desired. Address "Owner," P. O. Box 1036, Fort Worth, Texas.

FOR SALE—At bargain prices, oil and gas leases, production and royalties in the Kentucky shallow fields. For full particulars and maps address W. P. Harley, Bowling Green, Ky.

GULF COAST—370 ACRES

For sale—Section 40-9-3, Jefferson Davis Parish, Louisiana, 3 miles northeast Jennings.

East one-half to bayou timber, 2,000 Cypress, some pine, mostly oak and gum.

All virgin timber, never cut over. Adjoins oil field.

West one-half perfect rice land.

All surrounding land leased for oil development. This land is not leased.

Was purchased in 1900 by owner, J. H. Long, Eagle Grove, Iowa.

WILL CONSIDER lease on 120 acres. Less than half mile of good production in 23-14-9 Creek County by owner in fee. Address 601 S. Third St., Muskogee, Okla. Phone 358.

FOR SALE—Oil and gas leases in Barren and Cumberland Counties, Kentucky. Also producing and non-producing royalties. A. J. McDowell, Glasgow, Ky.

HAVE 18,000 acres oil and gas lease, New Mexico, for two deep test wells with good report. Make terms. G. E. Ellis, Bennet Indian Store, Albuquerque, N. M.

CULBERSON COUNTY, Texas, ranchman offering 5-year commercial oil and gas lease on all or part of 6,000 acres for $1.50 cash per acre and no rentals for first three years. Fourth and fifth years 25 cents per acre rentals. Need ready cash so am offering a bargain with wonderful possibilities to make you rich from oil. W. D. Casey, Toyah, Tex.

FOR SALE—20-acre lease between Bloomfield Oil & Gas Co.'s producing wells in San Juan Basin, New Mexico. Box 1076, Durango, Colo.

MORAPOS STRUCTURE—2% royalty in west half of Section 24, Township 3, Range 93, Rio Blanco County, Colorado. Write for prices. Harry G. Miller, Mt. Harris, Colo.

LEASES—PRODUCTION

ANDERSON COUNTY KANSAS
ACREAGE FOR SALE

Oil and gas leases, 88 form, been tested, found good showing of oil and gas in 3 to 15 feet of rich sand around 700 feet. Want action at once. W. L. Morris, Garnett, Kans.

OIL LEASE

On new Edenburg Dome, the best structure in Arkansas. Semi-proven where first wells will be producers; five oil sands, going 3,200 feet. Driller J. R. Brown of El Dorado, Ark., makes sworn affidavit that at 3,120 feet he went through 150 feet of the most likely sand he ever saw, also says "he could of got good well at 1,756 feet if he had been permitted." I will sell enough acreage on this dome at $10 to finish well. T. J. Clay, president of bank at Whitecastle, La., says "it's best and surest investment he ever saw." Act quick, would consider some reliable broker to handle this acreage. References, Exchange State Bank and Postmaster. S. A. Harrell & Co., Hornbeck, La.

FOR PANHANDLE oil leases and drilling contracts write Dr. W. R. German. Canadian, Texas.

SAN JUAN BASIN, New Mexico, 2,500 acres in this high gravity shallow well field, for sale or lease. Edward C. Hall, P. O. Box 37, Sugar Land, Tex.

SOUTHEST NEW MEXICO

Can furnish practically proven leases in Artesia Field, Eddy County. Also other tracts in Eddy, Chaves and Lea Counties. Particulars on request.

H. T. ORCUTT
816 Colcord Bldg. Oklahoma City, Okla.

GOOD ACREAGE, in new territory, for drilling on acreage basis. Box A-664, The Oil and Gas Journal, Tulsa, Okla.

JUST THINK. $2.80 will pay for sending a four-line advertisement all around the world four times. A four-line Classified Advertisement usually consists of 24 words and you know a great deal can be told in a few words. Mail your advertisement to the Classified Section now so that you will get in next Thursday's issue.

WILL SELL—40 or 80-acre lease adjoining Bloomfield's production in San Juan Basin, New Mexico. Box 84, Aztec, N. M.

I HAVE Government permit under Section 13, for 2,300 acres on structure in Fossil Field, Lincoln County, Wyoming. Shallow sand within 500 feet and deeper sand came in recently at 1,028 feet. Present indications larger producers will be brought in soon from the deeper sands. Oil 40 Baume gravity, 50% gasoline, paraffin base. Railroad runs through field. Will deal on any part or all at $10 per acre bonus and 10% royalty on the 5% land of this permit. For further information wire or write J. A. Peterson, 1550 Girard St., Los Angeles, Calif.

OIL COMPANIES ATTENTION

Have 160-acre lease in Crockett County. James Wiley and Archer School Land survey—surrounded by Gulf, Sun and Marland leases. Pressing obligations force me to sacrifice 80 acres of each lease. Box A-715, The Oil and Gas Journal, Tulsa, Okla.

SURE SHOT DRILLING CONTRACTS

Heart of proven area, 40 acres, Sections 13, 20 and 21, Block Y, Hutchinson County, Texas; ½ to 1 mile from Dixon Creek and Twin Six wells, both good producers. Four sections, 10-year lease, semiproven bargain.

R. P. O'GRADY
Box 201 Amarillo, Tex.

FOR SALE—At low prices, oil and gas leases and production in Barren and Warren Counties, Ky., shallow drilling. J. C. Preston, Bowling Green, Ky.

LEASES—PRODUCTION

NOTICE OF SALE

I WILL SELL, pursuant to order of the United States District Court, the oil and gas leases and personal property now jointly owned by the Roxana Petroleum Corp. and the North American Oil & Refining Corp. in the South Bend Oil Field, Young County, Texas. These leases comprise nearly 3,600 acres, with 23 producing oil wells, having a present settled production of about 230 bbls. per day. Equipment includes all machinery, powers, portable tools, well equipment, water pumping plant, water and oil pipe lines, tanks, buildings, fencings, etc. Also telephone line running from Graham, Tex. to South Bend, Tex. Sale may be made for all cash or upon terms.

BIDS WILL BE RECEIVED up to and including May 25th, 1925, for (1) the properties as a whole; (2) each lease separately, with the equipment pertaining thereto; (3) the telephone line; (4) the personal property, buildings, etc., not required for operation of the wells. Right is reserved to reject any and all bids.

COMPLETE INFORMATION as to the leases, wells and personal property will be furnished on request.

W. H. SANFORD, Master Commissioner,
1104 City National Bank Building,
Wichita Falls, Tex.

DOSS OIL ROYALTY CO.
Liberty National Bank Bldg.,
Oklahoma City, Okla.
We are in the market for
producing royalties in Oklahoma

For Close-In
OIL AND GAS LEASES
On Promising Structures in
Colorado, Wyoming, New Mexico
Texas
Communicate with
V. E. Stanley, Manager
Lease Department
A. A. HALL & COMPANY
711 17th Street Denver, Colo.

HAVE 12,000-ACRE oil lease in old Mexico, near border, 13,000 and 9,000 on Isthmus of Tehontepec. Need financing to drill; am an experienced driller. Believe oil is there in enormous quantities. Have for sale agricultural land so rich that it will make you rich. Mining land; mahogany, cedar, pine lands that will cut up to 20,000 feet per acre. 330 Mt. Ida St., Hot Springs, Ark.

MISSISSIPPI is in line for a sensational future. First well in State April 6, 1925, made 2,000,000 feet of gas. Your own price might buy all or any part of 194 leases, covering 30,000 acres in Lee County. Six-year leases, 5-cent rentals; give us a bid. The company's financial condition necessitates immediate sale. Write Baldwyn Petroleum Co., 302 Orear-Leslie Bldg., Kansas City, Mo.

OIL LEASES, oil contracts, drilling propositions, large or small. Arkansas deep sand special offering. Thirty years' oil experience. Address P. O. Box 194, El Dorado, Ark.

SOUTHWEST TEXAS FIELDS

(Continued from Page 30)

trusions in Uvalde County, just to the north of Zavala is being called to mind since the discovery of oil in volcanic formation in the Lockhart Field. Pilot Knob, south of Austin, in Travis County, is only about 25 miles north of the Lockhart Field. There are several volcanic intrusions in Uvalde County that are mapped and Bulletin No. 44 of the State University advances the theory that the Ellstone structure in Medina County is due to serpentine formation or igenous intrusion.

Amy Oil Co. in Medina County in the No. 1 Whipoff is drilling at 2,850 feet. California-Medina's No. 1 Rothe, northwest of D'Hanis is drilling at 2,895 feet, having made about 100 feet in a week. Lampassas-Bisbee's No. 1 Haeglin is drilling at 1,300 feet. Ina Oil Co.'s six shallow wells on the Durst survey are supplying oil to four drilling rigs and are believed to be averaging 6 or 8 bbls. each daily. The Smith & Donaldson's Ina's No. 4 is being pumped after being washed and is making 25 bbls. It is believed it may improve. Depth of the well is about 925 feet.

Dehydrating Plant

Success obtained with a dehydrating plant worked out on the plan of applying heat under pressure, and located on the Merriweather lease of the M. K. Towns Production Co. in the Luling Field, which was afterward sold to the Rio Bravo Oil Co. has been tested out with Mexican crude and it is claimed by the originators of the method that it is a success. They are now seeking to build a plant in Mexico.

When the Luling Field began to show water the M. K. Towns Production Co. sought advice at the Texas State University and were referred to Dr. C. F. Paul, who was there doing special research work. A small model was made that worked successfully on a small scale. Then a plant was built on the lease at a cost of $15,000 that worked successfully there. When the lease was sold to the Rio Bravo, the rights to the dehydrating system was retained.

John G. Towns, who is associated with M. K. Towns, has just returned with Dr. C. F. Paul from a trip to Mexico, where they claim they found more than 10,000,000 bbls. of emulsified oil in earthen storage of low gravity oil. Some weeks ago 20,000 bbls. of this oil with 20 to 40 per cent of water was shipped to Freeport, Tex., where a dehydrating plant had been built at the plant of the Freeport Sulphur Co. It is claimed that no other method of dehydrating is a success with the Mexican oil and that great quantities of the oil has been burned. Wells showing more than 3 per cent of water are plugged and abandoned for lack of methods for dehydrating.

The Paul system of dehydrating applied 350 degrees Fahrenheit to the emulsified oil under a pressure of 250 pounds. It is claimed that the water then separates from the oil.

Torsion Balance

The Gulf Production Co. has the Torsion Balance at Lockhart testing out the boundaries of the field. They were brought into the field before the discovery well was brought in and were on the Gulf's Beaty lease first. Since then they have been placed at different points about over the field. A few days ago they were on the F. A. Gomillion lease of the United North & South Oil Co. in the northern end of the field.

The instruments themselves are enclosed and are under tent covers three of them being strung down across a field in a row. They have caused considerable discussion among the geologists visiting the field. Some reports are that they are proving very successful in the field due to the higher density and gravity of the serpentine or igneous dome from which the oil in the Lockhart Field is coming.

Courseu-Matches have spudded in their test on the Aldamas structure in Mexico and have been drilling for a few days. The test on what some class as one of the biggest structures in northern Mexico, being located in the northeastern part of Nuevo Leon and about 25 miles from the Texas border at Rio Grande City. There is nearly 150,000 acres in the structure and major companies operating in Mexico hold practically all of the acreage outside of that on which the first test is being drilled.

Three Rivers Country

Texas Pacific Coal & Oil Co., on the Lark lease of the Lightfoot Oil Co., on the north side of the Frio River in the Calliham Field, has set 6⅝-inch casing at 1,016 feet and is preparing to test for gas production. Plateau Oil Co.-Texas Pacific Co.'s No. 1 D. B. Miller, in southern Live Oak County, has set and cemented 10-inch at 1,319 feet and will resume drilling in a few days. The well is west of the two producing gas wells one on the Freeman-Miller and the other on the Collins leases and will prove up more than a mile of gas area if the test is successful. The gas sand is found just above 2,400 feet. Humble Oil & Refining Co. is drilling at around 1,000 feet in its Dillworth No. 1 in southern McMullen County, 1½ miles southeast of the Hagish No. 1, on land owned in fee which was abandoned in gumbo at 2,262 feet.

Geo. B. Pickett's No. 1 James, in northern McMullen County, is drilling at 900 feet, having had only a small gas showing at 430 feet, a horizon at which he has completed two gas wells. Old Ocean Oil Co.'s No. 2 Brown, is drilling at 1,370 feet. Grubstake Investment Association's No. 1 Aycock, is shut down at 193 feet waiting on the drilling of the Aycock No. 2 which hopes to develop gas at 127 to 164 feet for fuel for drilling No. 1. Grubstake's No. 2 Jacobs has resumed drilling at 710 feet. Darden & Stephens' No. 3 Fouch, is ratholding at 1,000 feet, having encountered a gas showing. A. W. Kollatt's No. 1 Joe Mahoney, has set 6-inch on a rock at 1,750 feet. Coquat and others' No. 1 Hicks is drilling at 601 feet. Hawley Ayres has abandoned his test south of Fant City in northern Live Oak County at 600 feet. Steele and others (Kerr & Gellette) have abandoned Lynne No. 1 in southern Live Oak County at 2,510 feet.

Plateau Oil Co. has extended the new Jim Hogg County Pool 300 feet farther south by bringing in No. 4 Martinez in connection with Al Buchanan at the regulation depth of the field at about 2,000 feet and making 225 bbls. It is 300 feet south of No. 2 Martinez which has been flowing 250 bbls. daily and was one of the best wells in the field. East of No. 2 300 feet is the No. 1, a small producer and west of it the No. 3, a 20,000,000-foot gasser indicating that the field at that end is very narrow. The four wells are on block No. 7 of survey 256. The next well drilled will be 150 feet south of the north line of survey No. 10 which adjoins No. 7 on the south, and will be a quarter of a mile south of the No. 4. Some believe that the field will be found to widen out in that direction.

Only a few rigs are now running in the new Jim Hogg Pool brought in recently by Henne, Winch & Fariss (Big Bend Oil Co.). Most of the leases have been fully developed and the field has about reached its limits unless there is some new extension discovered. Production which reached over 28,000 bbls. for the week ending February 28, or 4,000 bbls. daily, dropped to 22,000 for the same week in March, or 3,000 bbls. daily and is now up to an average of 3,850 bbls. daily, with the Big Bend Oil Co., discoverers of the field, leading with over 1,000 bbls. daily.

Kisselman & St. Albans' No. 9 Holbien has set and cemented 6⅝-inch casing at 2,012 feet and are preparing to drill in. Magnolia is drilling in with a rig No. 6 Oscar Thompson in the southern part of the field. Magnolia's No. 4 Oscar Thompson, designed to test for a deeper sand is shut down at 2,205 feet with trouble from heaving shale. Texo Oil Co.'s No. 3 Lopez, in the north end of the field, is on rock at 2,325 feet and No. 4 Lopez is standing at 1,978 feet.

Jim Hogg County Wildcats

Wildcats in Jim Hogg County are Johnson & De Tray's No. 1 Vela, drilling in sandy shale at 2,020 feet. Pippin and others' No. 2 Palacious, drilling at 500 feet. Weber Oil Co.'s No. 4 Holbien, shut down at 3,375 feet.

In the region of the Cole Petroleum Co.'s wells on either side of the Webb-Duval County line east of Bruni, O. W. Killam on Cole Petroleum Co. acreage, has completed a 45,000,000-foot gasser in No. 2 Benavides, on the Duval County side of the line at 1,681 feet and has set and cemented 6⅝-inch casing at 1,704 feet in No. 1 Benavides. It was the hope that they would be far enough off the gas structure to make oil wells.

In the Carolina-Texas area north of Mirando City, where the Carolina-Texas Oil & Gas Trust has completed some gas wells, No. 1 Benavides and the company's sixth well has been made into a small gas well under the supervision of the Oil and Gas Division after the company had decided to abandon and plug it. Binney and others' No. 1 Garcia is drilling at 980 feet. Chenault and others' No. 1 Gates, after shutting down for repairs at 1,490 feet, resumed and set casing. Snodgrass and others' No. 1 de la Garza, is shut down at 650 feet while laying water line. Witherspoon Oil Co.'s No. 1 Dillard is drilling in sticky shale at 2,850 feet. National Oil & Refining Co.'s No. 1 Benavides on survey 701½, is fishing at 3,200 feet. Quigg and others' No. 1 Yeager is shut down at 1,600 feet. E. R. Marts and others' No. 1 Reiser near the old Reiser gas field, drilling at 980 feet in shale and sand.

Cin-Tex's No. 8 Garcia in the Mirando Pool, set and cemented 6⅝-inch at 1,751 feet, drilled in and is bailing and probably has a well. Wheatley Oil Co. is rigging up on No. 16 Los Ojuelos.

Production in the Mirando Pools, outside of the new Jim Hogg Pool, has been holding fairly steady for several weeks at close to 36,000 bbls. a week, or an average of 5,150 bbls. per day. The daily average of the Jim Hogg Pool brings the total daily average of the entire Mirando Field up to 9,000 bbls. daily.

Lockhart Crude Oil

Three tank cars of the new Lockhart crude oil run through a local refinery here produced 25 per cent gasoline and the remainder was classed from the practical point of the present market as fuel oil. It contained distillate and some kerosene which the refiner did not attempt to separate.

According to the report of this refiner 10½ gallons of gasoline were secured from one barrel of crude. There was a loss of 3 per cent in distilling and with the gasoline accounting for 25 per cent of the crude there was a remainder of 72 per cent which he classed as fuel oil.

Freight rates from Dale to San Antonio are 31 cents per barrel. Freight rate to Somerset is 48 cents per barrel. His arithmetic on the new crude was about as follows:

Cost of crude at Dale per bbl.	$1.75	
Freight to Somerset	.48	$2.23
Recovery—		
10½ gallons gasoline at 10c..	1.05	
72% of bbl. of fuel oil at 1.25..	.90	$1.95
Loss		$ .28

The refiner figures that he lost $50 a car on the crude he ran through. It is understool that the Gulf Production Co. sold several tanks for crude to the E. & K. Pipe line for $1.50 in order to empty the storage on the lease and to take care of the new production. Operators in the field have been discussing the probable price of the crude and as soon as the Magnolia has completed its pipe line and pumping plant and is in a position to take the crude it is understood it will post a price and that it will probably be the price of Mid-Continent crude for that gravity of oil.

On orders of the Oil & Gas Division of the Railroad Commission no new wells are being allowed in unless there is ample steel storage on the lease and no lease at present time is so equipped. Hence, there will be no new wells brought in until pipe lines are completed. Magnolia Pipeline Co. is putting in some large storage tanks at its pumping plant south of the field to take care of considerable storage until its line is completed. The pipe line probably will not be completed until some time the coming week.

In the meantime the E. & K. Pipeline Co., which laid the first 3-inch line from the field to Dale, is getting in pipe for an additional 4-inch line. It is also extending its loading rack at Dale to take care of more cars.

TRADE ORGANIZATION OF GREAT BENEFIT TO EVERYONE ENGAGED IN THAT INDUSTRY

By J. Edgar Pew
President American Petroleum Institute

The full extent of the value of industrial organizations is not always appreciated. The larger the industry and the more technical its character, the more is this value emphasized. There is a fellowship established in the meetings of these organizations that could not be had in any other way. When we keep too much to ourselves our vision of our opportunities is limited, and we fail in the things we are trying to do. Business cannot prosper these days and stand still; it must either go forward or fail. Competition is too keen for any other result.

Through these organizations the keenest minds meet and exchange ideas and methods, with the result that all are benefited and the members are able to return to their individual tasks with new vigor and with renewed interest. They can go back with a better understanding of their competitors as well as of their own problems.

This does not lessen competition, but creates a spirit of healthy rivalry and a higher grade of competition.

These organizations give their members the benefit of the accomplishments of the best brains in the entire industry, and there is no individual firm or corporation that cannot learn something from the other fellow. Thus the trade organization becomes a great university of practical knowledge for the benefit of all engaged in the particular industry. And this is as it should be. We are all trying to better our condition and to do something worth while in our chosen business or profession.

The public and the oil industry is greatly in debt to the Association of Natural Gasoline Manufacturers and its members for the accomplishments which have been effected through their efforts. Only a few years ago there was being lost to the industry and to the public a very large and valuable product from crude oil. Through the efforts of these men and the economies they have effected, the oil producer is not only being relieved of the charge of being a waster, but is also securing a very substantial profit; and the public is having added to its resources millions of barrels of gasoline annually which was heretofore a wasted commodity.

The Association of Natural Gasoline Manufacturers is entitled to much of the credit for this accomplishment. This has been a work of a highly technical character, and the things which have been accomplished are the result of the combined knowledge of some of the best brains employed in the oil industry.

I am glad to extend to the Association of Natural Gasoline Manufacturers my congratulations on their success and to urge them to even greater achievements.

Oil Stocks Were Dull and Irregular

New High for Anglo-American a Feature. Public Buying of More Speculative Issues Restricted by Industry's Developments

By N. O. Fanning
Room 543, No. 30 Church St., New York

NEW YORK, April 20.—Oil stocks were dull and irregular during the past week. Public buying of the more speculative issues has been restricted by recent developments in the industry. While heavy crude has been reduced light oil prices are higher; gasoline prices have risen in some sections and dropped in others. Few of the uninitiated seem sure enough of themselves to take a definite position one way or the other marketwise. One feature was the new high for Anglo-American at 25⅝.

Independent Oil & Gas

Independent Oil & Gas stock was active and fell to around 21, against a high for the year of more than 30. It sold as low as 13 in January of this year and sold around 6 in 1924.

California Stocks

Stocks of companies operating in California have been unusually soft, with one or two exceptions. Standard of California stock is believed to be selling out of line with stocks of other Standard units. Union of California, Associated Oil and others have been exceptionally weak.

One reason for this is that California companies are getting relatively less for gasoline than Eastern concerns. There has been a large surplus of gasoline on the coast, and it has been necessary to sell much of this east of the Rockies at low prices. Consumption of gasoline on the Coast has not been up to expectations.

While these factors cannot be overlooked, there are many encouraging features of the situation. Crude oil production is just about holding its own. Refineries are restricting their operations to an extent which promises a correction of the statistical position of the industry in the near future, especially so far as gasoline is concerned.

National Supply Co.

The National Supply Co. of Delaware and subsidiaries report for the year ended December 31, 1924, net income of $1,847,269 after interest, Federal taxes, depreciation, etc., equivalent after preferred dividends to $5.08 per share (par $50) earned on 265,900 shares of common stock, compared with $4,034,269, or $14.66 per share, on 241,320 shares in 1923.

The consolidated income account for 1924 compares as follows:

	1924	1923
Gross income	$ 6,999,919	$10,261,926
Expenses	4,176,742	4,888,989
Balance	$ 2,823,177	$ 5,372,937
Other income	256,065	588,819
Total income	$ 3,385,242	$ 5,961,756
Int., depr., taxes, etc.	1,260,896	1,253,394
Federal taxes	277,077	672,497
Balance	$ 1,847,269	$ 4,035,865
Minority interest		1,596
Net income	$ 1,847,269	$ 4,034,269
Preferred dividends	494,669	494,423
Common dividends	758,316	714,591
Surplus	$ 594,284	$ 2,825,255

James H. Barr, president of the National Supply Co. of Delaware and subsidiaries as of December 31, 1924, compares as follows:

Assets	1924	1923
*Lands, bldgs., etc.	$ 7,766,233	$ 7,953,286
Cash	2,610,704	1,600,987
Notes and accts receivable	12,884,986	11,948,222
Inventories	13,501,626	16,038,229
Miscel. investment	618,834	291,052
Deferred charges	54,223	44,886
Total	$37,436,606	$37,876,662

Liabilities		
Preferred stock	$ 7,095,160	$ 7,076,760
§Common stock	13,295,025	12,066,025
Capital stock & surplus of subsid. not owned	30,780	30,780
Notes payable	1,000,000	2,502,500
Accounts payable	3,238,813	2,331,864
Accrued wages, etc.	185,339	260,356
Bonds of subsid.	118,500	182,000
Fed. taxes payable	277,078	672,497
Insurance fund	764,978	679,875
Earned surplus	11,417,448	12,060,580
Other surplus	13,425	13,425
Total	$37,436,606	$37,876,662

*After depreciation. §Represented by 265,900 shares of $50 par value.

James H. Barru, president of the National Supply Co., said in the annual statement in part:

"As our business is largely dependent on wells drilled our total sales for 1924 were reduced from 1923, but net profits continued to show a very substantial surplus over dividend requirements. . . ."

"With the large overproduction during the past two years, and with production holding up remarkably well, it is not to be expected that there will be any quick and lasting reversal of conditions, but it is reasonable to believe we have reached the low point and that any change will be in the direction of improvement."

Pierce Petroleum

The Pierce Petroleum Corp. and subsidiaries report for the year ended December 31, 1924, net loss of $377,470 after interest, depreciation, etc.

Union Oil of California

The Union Oil Co. of California reports for the quarter ended March 31, 1925, net income of $2,550,000 after depreciation, depletion, Federal taxes, etc., equivalent to 67 cents per share (par $25) earned on $94,500,000 outstanding stock. This compares with $3,100,000, or $3.44 per share (par $100) on $90,000,000 stock outstanding in the first quarter of 1924.

The income account for the quarter ended March 31, 1925, compares as follows:

	1925	1924
*Profit	$ 5,550,000	$ 5,600,000
Depre., depl., etc.	3,000,000	2,500,000
Net income	$ 2,550,000	$ 3,100,000

*After expenses, Federal taxes and interest.

Skelly Oil Co.

The Skelly Oil Co. reports for 1924 net earnings of $4,707,054 out of gross earning of $18,296,827. The actual net surplus earnings for the first two months of 1925 after all charges and liberal reserves amounted to $496,000. Net surplus, estimating March, for the first quarter, will be about $750,000.

In discussing conditions, William G. Skelly, president, said that the present year "has opened favorably, the prices of oil and its products having advanced 50 per cent or more in three months. It can be said now only that the statistical position of the industry is stronger than at any time in the last four years with field development on a rational basis and a production on a level much below the recent average."

Humphreys Corp.

Capital stock of the Humphreys Corp., Wilmington, Del., newly formed oil concern of which Col. A. E. Humphreys is president, was increased from $50,000 to $10,000,000 at a recent stockholders meeting in Dallas. Authorized capital stock composed of 2,000 shares was increased to 400,000 shares common stock of no designated par value.

The Humphreys Corp. was recently granted permission to do business in Texas, application being filed immediately after sale of the Boyd Oil Co., a Humphreys concern to the Pure Oil Co. Colonel Humphreys was named president. F. Julius Fohs, geologist, is vice president.

Paragon Refining Co.

The Pargon Refining Co. for 1924 reports a deficit of $207,020 after all expenses and charges for depreciation and depletion, against a deficit of $614,572 reported for the 14 months ended December 31, 1923.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	§Dividends Rate	Clos. Apr. 20	Quot. Apr. 13	1926 High	1926 Low	1924 High	1924 Low	1923 High	1923 Low
American Republics	..	..	*40½	*51	66¼	48	48	25	..	..
Associated Oil	25	6	33	33	39½	32	34⅝	27⅝	29¼	29½
Atlantic Ref. com.	100	..	*102	*103	117½	95⅛	140½	78½	160	98⅝
Barnsdall "A"	25	..	22	22⅝	28¾	21	22½	14	37	9⅞
California Pet. com.	25	7	28¾	30	32⅞	23⅞	29	19⅞	28½	17½
General Am. Tank	..	†3	*46	48½	58½	45	53	35½	71⅝	40
General Petroleum	25	8	50	51½	57½	42	45	38⅝	..	..
Houston Oil	100	..	61	64½	85	60⅝	82½	61	78	40¾
Independent Oil & Gas	..	†1	23½	24⅝	33½	13½	16¼	5⅝	11¼	3⅜
Indian Refining	10	..	7⅛	7	10⅜	5½	7	3⅜	8½	4
Louisiana Oil	50	..	16¼	16⅝	23¾	14⅝	..	..	..	..
Maracaibo	..	..	26⅝	26⅛	35½	25½	37½	25⅝	28¼	16
Marland	..	..	35	36⅛	46¼	32⅝	42	29	59⅝	18½
Mexican Seaboard	..	..	17	18⅝	22½	11½	25⅜	14½	19⅝	5⅝
Mid-Continent Pet.	..	..	27	27¼	35⅞	26⅛	40¼	22⅝	62¼	23¾
National Supply	50	6	*63	62¼	71	61¾	72½	54	68	54
Pacific Oil	50	†2	55⅝	55¾	65¼	52¼	58¼	45	52½	31½
Pan American com.	20	12	73⅝	75	82⅝	65	65	44¼	93½	53
Phillips Petroleum	..	†2	38¼	39¼	46⅜	36¼	42½	28½	69⅝	19¾
Producers & Refiners	50	..	22⅝	*23½	32⅝	22	43½	29⅜	58¼	17½
Pure Oil com.	25	6	36	37	33¾	25½	30¼	20	32	16¼
Royal Dutch, N. Y. sh.	13.40	4.42⅛	48⅛	56½	57⅝	48¼	59⅜	40⅝	55½	40½
Shell Transport	10	3.30	*39¼	*40⅜	45⅝	41¼	42	33	41¼	29⅜
Shell Union com	..	†1	23⅝	24⅛	28⅝	22½	22½	15⅜	19¼	12⅜
Simms Petroleum	10	..	22⅞	23	26⅜	19½	24	10⅜	16⅜	6½
Sinclair Consolidated com.	..	..	18⅜	19½	24⅞	17	27½	15	29⅜	16
Skelly Oil	25	..	22⅞	24½	30½	21⅜	29	17⅛	35	12⅛
Standard of California	25	8	58¼	58¼	67¼	56⅝	68½	55½	64½	47½
Standard of N. J. com.	25	4	41	41¼	47½	38⅝	42½	33	44½	30⅝
Superior Oil	6	..	4¼	4⅝	6½	4	8⅛	2⅝	6⅜	2
The Texas Co.	25	12	43⅝	44½	49	42⅜	45⅝	37¾	52⅞	34⅝
Texas Pacific Coal & Oil	10	..	13⅛	14⅜	23⅜	11½	15¼	8¼	24⅝	5⅛
Tide Water Oil	100	4	130	*130	152	122	151	116¼	144	94
Transcontinental	..	..	4⅛	4⅜	5½	3⅞	6¼	3⅜	14½	1¼
Union Oil of California	25	7.2	36⅝	37⅞	43⅝	36½	39	35½	..	..
Union Tank com.	100	5	122½	*122½	127⅜	118½	132⅞	94	114	106
White Eagle Oil & Ref.	..	2¼	26	27¼	31⅜	25⅝	29⅝	23½	30⅜	20½
Standard Oil Stocks										
Anglo-American Oil	£1	25	24⅝	23½	25⅝	18	18⅜	14⅜	19⅜	13½
Borne Scrymser	100	12	*205	*202	240	212	264	150	153	110
Buckeye Pipe Line	50	14	*60½	60½	72	60½	85½	51	94	57½
Chesebrough Mfg. Co.	25	14	*58	*60	70	48¼	53½	29¼	340	205
Crescent Pipe Line	25	..	*11	*11	15⅜	12½	20	11¼	25	15
Cumberland Pipe Line	100	12	*143	145½	150	128	148	109	117	80
Eureka Pipe Line	100	8	*78	78	96	80	105	74	117¼	87
Galena Signal com.	100	4	55½	*55	68½	55	69⅜	62½	78	55
Humble Oil & Refining	25	4.8	46¼	46¼	47⅜	42¼	43⅜	36	41	28¼
Illinois Pipe Line	100	12	145	143	154½	127	161	123	171	115
Imperial Oil, Ltd.	..	†2	28⅜	28½	34⅛	27⅜	119	99	123	93
Indiana Pipe Line	50	8	*71	72	84	70	100	66	103	81
International Pet. Co.	100	x50	24	23⅞	28⅝	22½	24⅝	16⅞	24⅜	13¼
Magnolia Petroleum Co.	100	4.5	133	133	159	131½	162	124	166	123
National Transit	12.50	16	22½	22	25½	22½	26⅞	20⅝	29	19½
New York Transit	100	3	*64	64¼	79	64¼	97	54½	138	70
Northern Pipe Line	100	6	*83½	*83	88	80	107½	72	111	96
Ohio Oil Co.	25	8	*63½	64	75¼	62½	77½	53	85⅝	48⅝
Pen.-Mex. Fuel	25	..	40	*39	44	35⅝	45⅝	27	45	10½
Prairie Oil & Gas	25	†2	55	52⅝	65½	50½	269	193	272	152
Prairie Pipe Line	100	8	115½	116	126	106	111	100	117	93
Solar Refining Co.	100	15	*215	218	259	200	240	170	212	161
South Penn Oil	100	..	162	166	197	139	176	117	196	100
South West Pa. Line	100	4	*67	*67	84	65	89	68	89	66
Southern Pipe Line	100	4	81½	*81	103	81½	100	80½	116	87
Standard of Indiana	25	10	61⅞	61⅞	70	59½	69⅜	54¼	69⅞	48½
Standard of Kansas	25	..	*31	31	46	31	50½	32½	56¼	36½
Standard of Kentucky	25	16	115⅞	*115	124½	114¾	121½	101	109½	76
Standard of Nebraska	100	20	245	*247	270	244	262	198	280	186
Standard of New York	25	5.6	42	41⅜	48⅝	41⅛	48	37⅜	49¾	35½
Standard of Ohio com.	100	10	348	345	369	338	337½	277	320	270
Swan & Finch com.	25	..	*17½	*17½	27	16	28	20	..	..
Vacuum Oil	25	†3.75	86½	87¼	96½	80⅛	83½	56⅛	55½	40
Washington Oil	10	..	*30½	*30	30½	30	29	25	28	20¼
Miscellaneous Stocks										
Cities Service bks. sh.	‡	..	17⅞	18⅛	21	17	19	13¼	18½	12¾
Continental	10	10	22⅞	23½	31½	21⅞	..	..	..	..
Gulf Oil Corp. of Pa.	25	6	64	64½	71	63½	67⅜	56	68¼	45⅜

*Bid, no sales. †In dollars. ‡Six per cent cash and 6 per cent scrip annually. §The figures in this column are kept up to date as far as possible, but are not guaranteed. xCents per share.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

April 20	52.96	Mar. 16	54.14	Feb. 9	58.39	
April 13	53.49	Mar. 9	57.73	Feb. 2	59.24	
April 6	54.63	Mar. 2	59.56	Jan. 26	56.08	
Mar. 30	51.28	Feb. 23	58.02	Jan. 19	54.58	
Mar. 23	52.90	Feb. 16	56.96	Jan. 12	55.28	

ILLINOIS GASOLINE TAX LOSES IN LOWER HOUSE

CHICAGO, April 18.—The judiciary committee of the lower house of the State Legislature has reported against the passage of the two gasoline taxation measures which originated in that branch. Each proposed a 2 cents tax but differed in the disposition of the proceeds. The Senate measure has yet to be acted upon. It proposed a 2-cent tax and repeals the highway tax on property and is backed by the Illinois Agricultural Association, a farmers' organization. Motorists and others opposing the bill are planning a demonstration to consist of at least 25,000 motorists who will motor to the capital from all parts of the State and evidence their opposition in a most emphatic fashion.

ELECT D. E. BUCHANAN DIRECTOR OF INSTITUTE

At the recent meeting of the directors of the American Petroleum Institute, W. M. Welch, of Tulsa, resigned, the vacancy being filled by the election of D. E. Buchanan, president of the Association of Natural Gasoline Manufacturers.

NORTH CENTRAL TEXAS

(Continued from Page 32)

Carter & Myers' No. 1 Wilson, dry at 1,601 feet; Oasis Oil Co.'s No. 1 Wilson, dry at 1,676 feet; Riner and others' No. 15-B Wilson, 130 bbls. at 1,622 feet; No. 25 Wilson, 85 bbls. at 1,626 feet; Union Oil Co.'s No. 1 Parrish, dry at 1,603 feet; Clark and others' No. 2 Rogers, dry at 1,397 feet; Continental Oil Co.'s No. 9 Harmel, dry at 1,279 feet; Comac Oil Co.'s No. 1 Seay, dry at 1,704 feet; Grisham and others' No. 4 Hayter, 10 bbls. at 1,336 feet; Gwynn and others' No. 3-A Rogers, 60 bbls. at 1,375 feet; Humble Refining Co.'s No. 8 Stampfli, dry at 1,495 feet; No. 9 Stampfli, 15 bbls. at 1,380 feet; No. 10 Stampfli, 50 bbls. at 1,372 feet; Magnolia Petroleum Co.'s No. 4 Rogers, 30 bbls. at 1,331 feet: Shamrock Oil Co.'s No. 17-C Richardson, 50 bbls. at 1,311 feet; No. 18-C Richardson, dry at 1,345 feet; Shaw and others' No. 3-A Hayter, dry at 1,365 feet. No 11-A Monohan, dry at 1,350 feet; No. 1-B Monohan, dry at 1,348 feet; No. 1 Rogers, 110 bbls. at 1,281 feet; Teahoma Oil & Refining Co.'s No. 13 Harbison, 45 bbls. at 1,340 feet; No. 1 Morrison, dry at 1,555 feet; Young and others' No. 1 Abercombie, dry at 1,602 feet.

Young County

Andrade and others' No. 1 Gose, dry at 1,405 feet; Burton and others' No. 1 Weaver, dry at 1,503 feet; Hinson and others' No. 4 McLaren, 80 bbls. at 2,395 feet; Humble Oil & Refining Co.'s No. 3 Campbell, 85 bbls. at 1,042 feet; No. 4 Schlegel, 40 bbls. at 1,186 feet; Marland Oil Co.'s No. 1 Harrison, dry at 3,065 feet; Mooers and others' No. 1 Kunkel, dry at 1,306 feet; Murchison and others' No. 2 Haygood, 185 bbls. at 1,000 feet; No. 8 Schegel, 90 bbls. at 1,178 feet; No. 11 Schlegel, 325 bbls. at 1,197 feet; Norton and others' No. 2 Hamilton, 325 bbls. at 1,203 feet; Panhandle Oil & Refining Co.'s No. 3 Gambrell, 445 bbls. at 1,210 feet; Roamer Oil Co.'s No. 4 Stewart, dry at 894 feet; Simms Oil Co.'s No. 8 Carpenter, 200 bbls. at 1,044 feet; No. 3-B Carpenter, 500 bbls. at 1,035 feet; The Texas Co.' No. 13 Gambrell, 230 bbls. at 1,224 feet; No. 16 Gambrell, 405 bbls. at 1,217 feet; Texhoma Oil & Refining Co.'s No. 8 Gambrell, 405 bbls. at 1,217 feet.

Stephens County

Hughes and others' No. 4 Gandy, 3 bbls. oil and 2,000,000 feet gas at 3,275 feet; Texas Fidelity Corp.'s No. 1 Ashmore, dry at 2,100 feet; T. P. Coal & Oil Co.'s No. 3 Smith, dry at 2,010 feet; The Texas Co.'s No. 42-A Parks, 6,000,000 cubic feet gas at 1,907 feet; Williams and others' No. 10 Rosenquest, 5 bbls. at 1,827 feet.

Eastland County

Parsons and others' No. 1 Jones, 4,500,000 feet gas at 3,087 feet; Kimmell and others' No. 1 Lamb, dry at 3,105 feet.

Brown County

Canyon Oil & Gas Co.'s No. 4-B McDonough, dry at 1,345 feet; Gillett and others' No. 2 Prather, 80 bbls. at 1,321 feet; Gillman and others' No. 8 Newton, 30 bbls. at 1,266 feet; Mahlstedt Mook Oil Co.'s No. 7 Newton, 100 bbls. at 1,292 feet.

Reagan County

Texon Oil & Land Co.'s No. 5, Group 1, University, 2,980 bbls. at 3,030 feet; Wrightsman and others No. 1 Ingham, dry at 3,330 feet.

Hutchinson County

Western Enterprise Oil & Gas Co.'s No. 1 Smith, 10 bbls. oil and 40 bbls. water at 2,880 feet.

Clay County

Culbertson and others' No. 1 Fee, dry at 2,000 feet; Halmack Oil Co.'s No. 1 Gore, dry at 1,742 feet.

Montague County

Daniels and others' No. 1 Howard, dry at 1,820 feet; Petroleum Production Co.'s No. 1 Howard, dry at 2,350 feet; Texhoma Oil & Refining Co.'s No. 3 Howard, 45 bbls. at 1,397 feet.

Throckmorton County

McGee and others' No. 1 Kester, dry and 1,416 feet; McNeil and others' No. 1 Travis County School Land, dry at 2,001 feet; Plains Production Co.'s No. 1 Peck, dry at 1,510 feet.

Shackelford County

Applegate and others' No. 1 Maberly, 5 bbls at 942 feet; Loggie and others' No. 1 Block, dry at 1,120 feet.

Wichita County Drilling

Bonchil Oil Co.'s No. 6 Beach has an oil show at 1,255 feet; Brookover and others' No. 1 Hefley, drilling at 1,379 feet; Continental Oil Co.'s No. 6 Roller, 1,210 feet; Couch and others' No. 14 Donohoe, 500 feet; Fowler and others' No. 1 Gaston, 150 feet; Hunter and others' No. 3 Bailey, 150 feet; Magnolia Petroleum Co.'s No. 1 Weeth, 1,555 feet; No. 110 Reilly, 1,430 feet; Texhoma and Hunter's No. 6 Bailey has an oil show at 1,338 feet; Wilcox and others' No. 1 Musgrove, drilling at 100 feet; Brashear and others' No. 1 Fossett, 1,300 feet; Hawkins and others' No. 7 Watkins, 1,000 feet; No. 1-B Watkins, fishing at 1,771 feet; Howell and others' No. 4 Burnett, drilling at 790 feet; Howell and others No. 1 Burnett has an oil show at 1,598 feet; Hill and others' No. 1 Mitchell, drilling at 910 feet; Humble Oil & Refining Co.'s No. 2 Waggoner Brothers, 951 feet; Kruger and others' No. 13 Allen & Kemp, 1,685 feet; Magnolia Petroleum Co.'s No. 67 Honaker, underreaming; No. 17 Maer, drilling at 1,210 feet; No. 18 Maer, swabbing oil at 1,214 feet; No. 19 Maer, drilling at 1,751 feet; No. 45 Rio Bravo, 715 feet; No. 4 Watkins, cementing casing at 1,779 feet; Moore and others' No. 4 Burnett, drilling at 2,000 feet; O'Neil and others' No. 15 Rio Bravo, 915 feet; Petroleum Production Co.'s No. 14 Maer, 800 feet; Ryan Petroleum Co.'s No. 33 Nance, spudding; Section 2 Oil Co.'s No. 7 Burnett, drilling at 2,076 feet; Stidham and others' No. 3 Daume, 1,200 feet; Texhoma and Cullum's No. 7-A Burnett, 1,590 feet; No. 3-B Burnett has oil show at 1,820 feet; No. 4-C Burnett, drilling at 382 feet; No. 3-E Burnett, setting casing at 1,801 feet; Trimutual Oil & Gas Co.'s No. 9 Ward & Todd, bailing at 943 feet; Underwood and others' No. 1 Pace, drilling at 1,575 feet.

Wilbarger County Drilling

Atlantic Oil Production Co.'s No. 1 Waggoner, drilling deeper to 1,444 feet; No. 1 Zipperle, drilling at 1,609 feet; No. 3 Zipperle, 1,050 feet; No. 4 Zipperle, 300 feet; Barkley and others' No. 2 Stephens, bailing at 1,504 feet; Beatty and others' No. 1 Waggoner (Section 47) drilling at 1,455 feet; Brewer and others' No. 1 Schumaker, 820 feet; Bridwell and others' No. 6 Dill, 490 feet; No. 1 McCrary, 1,000 feet; No. 8 Stephens, testing sand at 2,294 feet; No. 9 Stephens, drilling at 650 feet; No. 1 Waggoner, 2,310 feet; Texas Pacific Coal & Oil Co.'s No. 1 Waggoner, underreaming; Burton and others' No. 1 Castlebury, drilling at 2,175 feet; No. 1 Zipperle, fishing at 1,140 feet; Continental Oil Co.'s No. 5 Zipperle, drilling at 1,225 feet; Dipon and others No. 1 Waggoner, 950 feet; Herbert and others' No. 1 Waggoner, spudding; Humble Oil & Refining Co.'s No. 3 Castlebury, drilling at 2,545 feet; No. 13 Castlebury, 900 feet; No. 14 Castlebury, at 1,155 feet; No. 15 Castlebury, 1,060 feet; No. 17 Castlebury, 1,080 feet; No. 3 Stephens, 2,042 feet; No. 16 Stephens, 1,050 feet; No. 17 Stephens, drilling on sand at 1,280 feet; No. 21 Stephens, fishing at 2,164 feet; No. 1-C Waggoner, casing collapsed at 2,185 feet; Key and others' No. 1 Waggoner, underreaming; Knight and others' No. 1 Waggoner, bailing at 1,968 feet; No. 4 Waggoner, drilling at 950 feet; Kolp and others' No. 4 Waggoner drilling deeper at 1,300 feet; No. 5 Waggoner, has an oil show at 1,400 feet; Levy and others' No. 2 Waggoner, drilling at 1,852 feet; No. 1 Waggoner (Block 4) cleaning out at 500 feet; Lippard Oil Co.'s No. 1 Fluhman, testing at 1,297 feet; Mattylee Lippard's No. 1 Waggoner, drilling at 1,200 feet; No. 2 Waggoner, spudding; McCamey and others' No. 1 Waggoner, drilling at 720 feet; No. 6 Richardson, 690 feet; No. 7 Stephens, underreaming; No. 12 Stephens, fishing at 1,045 feet; No. 16 Stephens, drilling at 1,100 feet; No. 17 Stephens, fishing at 1,025 feet; No. 19 Stephens, drilling at 1,225 feet; McKanna and others' No. 1 Waggoner (Section 48), fishing at 700 feet; No. 2 Waggoner (Section 31), drilling at 575 feet; McLester Oil Co.'s No. 1 Waggoner, spudding; Magnolia Petroleum Co.'s No. 67 fee, underreaming; No. 44 Piper, drilling at 910 feet; No. 1 More-Waggoner, underreaming; Maxwell and others' No. 1 Morris, drilling at 1,350 feet; Murchison and others' No. 1 Waggoner, 2,100 feet; Oxford Oil Co.'s No. 2 Waggoner, cleaning out at 2,078 feet; Panhandle Refining Co.'s No. 1 Key, drilling at 300 feet; Priddy and others' No. 4 Castlebury, 950 feet; No. 5 Castlebury, 600 feet; No. 7 Castlebury, 900 feet; Ray and others' No. 9 Bond, 1,410 feet; No. 10 Bond, 1,400 feet; Root and others' No. 1 McCrary, 1,530 feet; Shamrock Oil Co.'s No. 1 Waggoner and others, 700 feet; Shipley and others' No. 1 Murphy, cleaning out at 1,065 feet; Simms Oil Co.'s No. 1 Collins, drilling at 900 feet; South Vernon Oil Co.'s No. 1 Zipperle, 600 feet; Staley and others' No. 1 Bond, drilling deeper at 1,450 feet; The Texas Co.'s No. 1-B Castlebury, underreaming; No. 1 Owens, fishing at 1,232 feet; No. 202 Waggoner, drilling in lime at 2,480 feet; Texhoma Oil & Refining Co.'s No. 1 Flenniken, drilling at 1,000 feet; No. 1 Thomas, 1,620 feet; Upham Co.'s No. 1 Waggoner, 450 feet; Wells and others' No. 1 Waggoner, 1,180 feet; Lawson and others' No. 4 Waggoner, 1,175 feet; No. 5 Waggoner, 1,320 feet; Whibert Oil Corp.'s No. 1-B Waggoner, spudding; Winnipeg Oil Co.'s No. 7 Bond, drilling at 1,950 feet; No. 8 Bond, drilling at 1,000 feet; Wood and others No. 1 McGill, 300 feet.

Archer County Drilling

Atlantic Oil Production Co.'s No. 7-A Parrish, underreaming; Barnes and others' No. 4 Wilson, ratholing at 1,605 feet; Bridwell and others' No. 8 Wilson, drilling at 1,535 feet; Carter and others' No. 1 Wilson, underreaming; Dale Oil Corp.'s No. 11 Wilmot, drilling at 1,160 feet; Empire Gas & Fuel Co.'s No. 3-A Wilson, has an oil show at 1,624 feet; Farish and others' No. 1 Wilson, drilling at 1,370 feet; Franklin and others' No. 7-B Parrish, 1,645 feet; No. 8-B Parrish, 160 feet; Humble Oil & Refining Co.'s No. 1-A Parkey will test a sand at 1,708 feet; Jetter and others' No. 3 White, drilling an oil sand at 1,597 feet; Lawson and others' No. 4 Wilson, ratholing at 1,565 feet; Lincoln and others' No. 1 Rutly, underreaming; Maxson and others' No. 1 Wilson, drilling at 1,120 feet; McCarty Oil Co.'s No. 1 Wilson, underreaming; Norwood and others' No. 1 Carson, drilling at 900 feet; Oil Investment Co.'s No. 8 fee, 1,090 feet; Waite Phillips' No. 1 Woodrum, fishing at 1,390 feet; Phillips Petroleum Co.'s No. 59 White, drilling an oil sand at 1,601 feet; No. 61 White, drilling at 1,275 feet; No. 62 White, 1,170 feet; Prairie Oil & Gas Co.'s No. 10-A Wilson, 1,240 feet; R. M. F. Oil Co.'s No. 9 Nichols, 1,530 feet; Riner and others' No. 18-B Wilson, 300 feet; Simms Oil Co.'s No. 8 Parrish, ratholing at 1,570 feet; Staley and others' No. 11-C Wilson, drilling at 1,350 feet; Sun Oil Co.'s No. 1 Priddy, underreaming; Texas Unity Oil Co.'s No. 1 Wilson, drilling at 1,600 feet; Texhoma Oil & Refining Co.'s No. 6 Wilson, 690 feet; No. 4-E Wilson, testing a sand at 1,378 feet; Thomas and others' No. 1 Parmenter, drilling at 1,830 feet; Underwood Drilling Co.'s No. 1 Reilly, drilling at 1,810 feet; United Central Oil Co.'s No. 1 Wilson, setting casing at 1,636 feet; Archer Oil Co.'s No. 2 Coffield, drilling at 1,520 feet; Clark and others' No. 1 Cowan, 1,060 feet; Mitcham and others' No. 1 Wilson, 1,425 feet; Rayzor and others' No. 1 Porter, 1,070 feet; Ross and others' No. 1 Seay, 1,425 feet; Sun Oil Co.'s No. 3 Abercrombie & Taylor, testing a sand at 1,388 feet; Sun Oil Co.'s No. 10 Farmer, underreaming.

Stephens County Drilling

Humble Oil & Refining Co.'s No. 6 Keel is drilling at 2,255 feet; Mid-Kansas Oil & Gas Co.'s No. 11 Atkins account 1, 1,538 feet; No. 13 Hill account, 1,905 feet; No. 16 Hill, 195 feet; Pender Production Co.'s No. 5 Keel, underreaming; Phillips Petroleum Co.'s No. 1 Allen, drilling at 1,550 feet; Roeser and others' No. 5 Bell, 1,150 feet; Rosell Production Co.'s No. 2-B Brown, 2,800 feet; Snowden & McSweeney's No. 5 Higginbotham, fishing at 3,195 feet; Sun Oil Co.'s No. 5 Stoker, drilling at 225 feet; Texas Consolidated Oil Co.'s No. 6 Martin, setting casing at 3,797 feet; Texas Pacific Coal & Oil Co.'s No. 4 Kirtley, drilling at 980 feet; Barkley and others' No. 1 Prichard, 2,975 feet; Buckeye Pipe & Supply Co.'s No. 1 Pisgah Church, 2,250 feet; Carter and others' No. 2 Langford, 2,200 feet; Curry Pool Oil Co.'s No. 2 Jones, 1,900 feet; Edson and others' No. 2 Crowley, fishing at 570 feet; Holcomb and others' No. 1 Ming, fishing at 1,306 feet; Kleinfelder and others' No. 2 Grimes, drilling at 2,260 feet; Landreth Production Co.'s No. 2 Gratz, 2,625 feet; Magnolia Petroleum Co.'s No. 4 Jones, drilling in gray lime at 3,140 feet; No. 5 Walker, drilling at 2,615 feet; Mook Texas Oil Co.'s No. 2 Head, plugging back to start at 2,210 feet; Pender Production Co.'s No. 1 Elder, drilling at 2,850 feet; Phillips Petroleum Co.'s No. 2 Moore, 1,575 feet; Simms Oil Co.'s No. 5 Decker, spudding; Stran Petroleum Co.'s No. 22 Stuart, drilling at 760 feet; Sun Oil Co.'s No. 7 McMeen, 1,510 feet; Texas Pacific Coal & Oil Co.'s No. 6 Adams, swabbing oil at 2,215 feet; No. 51 Binney, drilling at 970 feet; No. 52 Binney, 585 feet; No. 2 Hand account 2, 3,310 feet; No. 1 Veale, cleaning out at 4,370 feet; The Texas Co.'s No. 41-A Parks, pulling pipe at 2,528 feet.

Eastland County Drilling

Calloway and others' No. 1 Wilson, drilling at 1,400 feet; Gholson and others, No. 1 Gholson has an oil show at 3,145 feet; Lightfoot and others' No. 1 Allen, plugging back; Magnolia Petroleum Co.'s No. 8 Hankins, drilling at 2,835 feet; No. 6 Harris, 1,050 feet; No. 5 Rodgers, 2,710 feet; Mid-Kansas Oil & Gas Co.'s No. 10 Harrell account 2, 1,830 feet; Parsons and others' No. 2 Motes, 2,650 feet; Porter Development Co.'s No. 1 Downtain, drilling a sand at 3,088 feet; Prairie Oil & Gas Co.'s No. 22 Roper, drilling at 725 feet; Reclamation Oil Co.'s No. 6 Bond, 1,320 feet; No. 7 Bond, fishing at 1,900 feet; States Oil Corp.'s No. 5 Homer, drilling at 2,570 feet; No. 7-A Loper, spudding; No. 4 Summerall has an oil show at 2,116 feet; Urbin and others' No. 1 Cox, spudding; Westheimer and others' No. 9 Hamilton, spudding; Adams and others' No. 1 Donovan, drilling at 2,640 feet; No. 1 League, drilling at 2,780 feet; Burkett and others' No. 1 Robinson, drilling at 2,200 feet; Car-De-Zone Oil Co.'s No. 4 Stubblefield, 2,350 feet; Dorothy Oil Co.'s No. 2 Davenport, fishing at 3,380 feet; Lindsley and others' No. 2 Dulin, drilling at 2,200 feet; Pennant Oil & Gas Co.'s No. 8 Teston, fishing at 1,550 feet; Reeves and others' No. 1 Leveridge, spudding; Root and others' No. 1 Noble, drilling at 1,284 feet; Rumbaugh and others' No. 1 White, spudding; States Oil Corp.'s No. 1 Calvert, drilling at 2,180 feet; No. 1 Hise, setting casing at 2,319 feet; Texas Development Co.'s No. 1 Eppler, drilling at 1,460 feet; Weaver Oil Corp.'s No. 2 Dulin, 609 feet.

Brown County Drilling

Gillman and others' No. 2 Teston, drilling at 390 feet; Mahlstedt Mook Oil Co.'s No. 4 Gaines, spudding; Rhodes and others' No. 5 Prather, drilling at 497 feet.

Reagan County Drilling

Big Lake Oil Co.'s No. 16 University, connecting up at 2,941 feet; No. 17 University, mudding in at 2,440 feet; No. 19 University, cleaning out at 2,473 feet; No. 22 University, fishing at 2,280 feet; No. 23 University, drilling at 2,640 feet; No. 24 University, setting casing at 2,775 feet; California Oil Co.'s No. 1 University, drilling at 3,660 feet; Hoffman and others' No. 1 University, 2,900 feet; Texon Oil & Land Co.'s No. 6 Group 1 University, 2,645 feet; No. 7 Group 1 University, 2,842 feet; No. 8 Group 1 University, 2,805 feet; No. 10 Group 1 University, 520 feet; No. 11 Group 1 University, 540 feet; No. 12 Group 1

(Continued on Page 176)

REFINING AND MARKETING

WINTER CONSUMPTION MAKES EASTERN RECORD

NEW YORK, April 21.—Mid-winter consumption of gasoline, as based on sales of December and January, broke all records for consumption during the same two months in any previous winter, according to figures compiled by Carl Pforzheimer & Co., specialists in Standard Oil securities. Sales last December and January totaled 1,801,421,473 gallons while those the previous corresponding two months were 1,421,429,685 gallons, an increase of 379,991,788 gallons in favor of this last December and January.

In line with the increase in consumption of gasoline, there also was less surplus gasoline produced this last winter than ever before, although there was substantial increase in the output. During last December and January 2,417,707,244 gallons of gasoline were produced while 2,058,227,209 gallons were made the same two months of the winter previous. This was an increase this year of only 379,480,035 gallons, compared with increase in consumption of 379,991,788 gallons.

Last December and January there was a surplus in gasoline amounting to 616,285,771 gallons while the previous winter the surplus totaled 616,797,524 gallons.

The following table shows domestic consumption, production and storage increase during December and January of each winter for the last five years:

	Dom. Cons. Gasoline	Dom. Output Gasoline	Storage Increase Over Period
1924-5	1,801,421,473	2,417,707,244	*353,973,767
1923-4	1,421,429,685	2,038,227,209	398,337,526
1922-3	1,271,459,747	1,777,425,092	353,617,148
1921-2	858,658,476	1,281,877,327	311,789,202
1920-1	809,619,719	1,313,014,047	325,704,587

*Storage increase represents the difference between output and imports less domestic consumption and exports.

INDIANAPOLIS BOASTS BIG SERVICE STATION

INDIANAPOLIS, Ind., April 20.—The Plaza Oil Co. of Indianapolis, Ind., is completing what is declared to be the finest service station in the world in the business center of Indianapolis. The station is on a "million dollar" lot and will cost $100,000. Practically all service will be automatic. The crankcase drainage department will accommodate 30 cars simultaneously. Fourteen service pumps will be on the lot. The Plaza company has taken contract for serving the fleet of 600 busses, making up one of the largest of motor service concerns in the country, which has its headquarters there. N. E. Carter heads the Plaza company. He also operates the Lincoln Oil Co., of Fort Wayne and the Eastern Oil Co., of Muncie.

USE GASOLINE LOCOMOTIVES

BEACON, N. Y., April 20.—Gasoline driven locomotives will replace steam on local passenger trains on three divisions of the Central New England railroad, according to plans of officials of the company. The change is being made as a means of reducing wage expenditure, fuel bills and upkeep costs.

ORIENTAL OIL FIRE

DALLAS, Texas, April 20.—Fire, which destroyed the warehouse filled with lubricants, greases and oil field accessories owned by the Oriental Oil Co., here last week, caused a total loss amounting to $75,000, according to a check by officials of the company.

CRACKING SUIT DATE

CHICAGO, April 20.—Final hearing of the cracking suit of the Government against a number of leading oil companies will be held in Federal court here May 8.

NEW CRACKING UNITS

CHICAGO, April 21.—Installation of Dubbs cracking units in plants of the Arro Oil & Refining Co. at Lewistown, Mont., and John Fell & Co. at Sydney, Australia, has been announced by the Universal Oil Products Co., of Chicago. Each plant has installed one unit.

Orders for additional units have been received by the Universal company from plants of the Roxana Petroleum Corp., at Wood River, Ill., and the Shell Co. at Wilmington, California. Roxana will install four more units and the Shell company two more.

BIG FEBRUARY BUYING BY OKLAHOMA JOBBERS

OKLAHOMA CITY, Okla., April 20.—The buying of unusually large stocks of gasoline by Oklahoma jobbers during February is revealed in the inspection figures for that month on the books of the Oil and Gas Conservation Bureau of the Corporation Commission. These show that in February, 12,836,809 gallons of gasoline were inspected, compared with 7,831,257 gallons in February, 1924. January inspections totaled 11,929,880 gallons, compared with 10,300,831 gallons in January of 1924.

In January of this year kerosene inspections totaled 2,798,822 gallons and in February 2,940,940 gallons. In these months of 1924 the figures were 2,826,292 and 2,510,443 gallons respectively.

MAY REOPEN REFINERY BY MERGING INTERESTS

LONG BEACH, Cal., April 20.—Possibilities of the reopening of the plant of the Crystal Petroleum Products Corp., are seen here as a result of F. J. Abbott, president of the company, making operating arrangements with the Hursh Refining Co. The Crystal plant was closed a year ago because of inadequate crude supply while the Hursh plant, which has been condemned by a fire zoning ordinance, may be dismantled and reassembled at the Crystal refinery. The Hursh company has a satisfactory supply of crude contracted in the Signal Hill Field.

Possibilities of the organization of an entirely new company formed by the merger of the Crystal and Hursh interests are seen in the fact that the Crystal company has a good plant but no crude while the Hursh company has the crude but no adequate refinery.

LOUANN GASOLINE PLANT

Work will be started in the near future on the new low pressure absorption natural gasoline plant to be built by the Gilliland Oil Co., on its holdings in the Louann section of the Smackover district. The plant will have a capacity of 4,000,000 feet of gas or about 8,000 gallons of gasoline daily. It will cost $150,000. In addition to production owned by the Gilliland company, contracts have been made with The Texas Co.

MOVING CHICAGO OFFICES

CHICAGO, April 21.—Preparations are being made by the C. A. Gustafson Co., a Chicago petroleum marketing firm, to move its offices from the Rand-McNally building to 624 S. Michigan Avenue.

GRAYBURG REFINERY LOSS

SAN ANTONIO, Texas, April 21.—Late estimates on the damage caused by the recent fire at Grayburg refinery place the total at only $10,000. The blaze was confined to one still. It started when a bulkhead on top of the still blew out under high pressure.

PERMITS TO TRANSFER OIL COMPANY STOCK

OKLAHOMA CITY, April 20.—Important expansions of business in the jobbing and retailing of oil products are indicated in applications for permits to transfer stock made to the State Issues Commission by the F. E. Heckethorn Oil Co., of Ardmore and the Weldon Oil Co., of Enid, both large independent oil selling firms.

The Heckethorn company, which has a capital stock of $100,000, has filling stations in Ardmore, Marietta, Sulphur, Antlers and Wetumka. F. E. Heckethorn is president and general manager and Robert Murphy, of Durant, is vice president. The Weldon company, with a capital stock of $150,000, recently absorbed the interests of H. E. Weldon for $65,000 of the company's capital stock. Weldon is president of the company and H. E. Beese, vice president.

RATES ON OIL PRODUCTS BY TEXAS COMMISSION

AUSTIN, Texas, April 20.—Rates on crude and fuel oil in tank cars, when loaded at a temperature below 150 degrees Fahrenheit, shall be charged for on the weight of 8 pounds a gallon, and when above 150 degrees Fahrenheit, shall be charged for on actual weight at loading temperature, based on the number of gallons contained in the shell and dome, according to an order issued by the railroad commission.

The carload minimum weight shall be 98 per cent of the shell gallonage capacity of the tank, exclusive of the dome, at eight pounds a gallon, but not to exceed the actual weight and dome combined, the order also provides.

EXTENDING STATIONS ON PACIFIC COAST

SAN FRANCISCO, Cal., April 20.—The General Petroleum Corp., according to its official bulletin, is extending its stations into all parts of the Pacific Coast district. Starting direct distribution of gasoline late in 1923 at Seattle, Wash., with three tank trucks, the company now has scores of tank trucks and stations in Washington, Oregon and many parts of California.

The retail distribution of General products in California began late in 1924 when distributing facilities were erected in San Francisco and Oakland. The company lately started retailing refined products in Los Angeles and now is making arrangements for agencies at Sacramento, San Jose, Santa Rosa and Redwood City. Other stations will be opened as rapidly as possible.

The General company has marine stations at Los Angeles Harbor, Seattle, Portland and at Ketchikan, Alaska, for marketing gasoline and other refined products to fishing and pleasure craft.

The company will continue to market in cargo lots from its refinery as it did previous to late 1923.

NEW FUEL COMPANY

CHICAGO, April 21.—Charlotte June Miller, Earl W. Smith and Nelson C. Newell have incorporated the Sterling Fuel Oil Co., to do a fuel oil business in Chicago, with headquarters at 5433 Wabash Avenue.

OIL COMPANY LICENSED

ROCKFORD, Ill., April 21.—Hart Oil Co. of this city has been licensed to do business in Illinois with a capital stock of $20,000. It will conduct a general oil business and is composed of J. W. Hart, E. H. Bartlett and John G. Knodle.

COLLECTIVE BUYING BY OKLAHOMA JOBBERS

OKLAHOMA CITY, Okla., April 20.—Collective buying of oil products for members of the Oklahoma Oil Jobbers Association, as a measure of cooperation, economy and assurance of quality may be adopted soon by the board of control of the association. The body at its recent quarterly meeting in Oklahoma City authorized the board to inquire into the feasibility of the proposition and adopt it and put it into execution at once if it were convinced it has the merit a majority of members suppose.

The policy was advocated by L. A. Warren and C. M. Kinney, president and secretary respectively of the association, who assured the members that while it would greatly benefit small jobbers in far-off localities who cannot keep in touch with markets it would work no hardship on the larger jobber or the refiner. Refinery representatives present said they saw no objection to it.

It is contemplated that the association will create its own purchasing bureau and that jobbers who desire to take advantage of the service will place their orders through it. The management of the bureau would be expected to keep in constant touch with market situations and to advise members of changes of prices. Officials of the association believed nothing would stimulate greater interest in the association or cause a larger increase of membership. They believed also that through it some minor evils that cannot now be reached might be corrected.

The association adopted a motion placing it on record as favoring the gradual elimination of the lending of filling station equipment by refiners and jobbers. Members reported that the Gulf Refining Co. and the Waite Phillips Co. are among the large refining and marketing firms which have adopted the policy of lending nothing more than pumps among items of equipment. It was said this policy is meeting approval over eastern States and is spreading into the West.

Attention of the association was called to an ordinance recently adopted by the City Commissioners of Oklahoma City ordering discontinuance by May 1 of all curb pumps in the city and forbidding issuance of licenses for curb pumps thereafter. It was said the ordinance probably would be contested.

Interest in association work during the year is to be stimulated by the holding of more group meetings and increased membership through personal work of members. More extensive programs are to be arranged for the quarterly meetings in Oklahoma City. President Warren is to appoint an entertainment committee that will function at the July meeting. At that meeting or the next one, in October, manufacturers of jobbing equipment and other allied trades are to be especially invited to attend, display products and take part in programs.

NEW DISTRIBUTING FIRM

CHARITON, Iowa, April 21.—E. E. Stewart has organized the Stewart-Brown Oil Co. as a distributor at Chariton Mr. Stewart has been the Standard distributor here for some time.

PURE OIL CO. CHICAGO OFFICE

CHICAGO, April 20.—To provide more adequate space facilities, the Pure Oil Co. is moving its Chicago headquarters to 105 West Monroe Street.

SHAFFER CO. EARNINGS

CHICAGO, April 20.—Net operation earnings of the Shaffer Oil & Refining Co. for 1924 totaled $2,324,685, according to an official report, an increase of 97 per cent over net earnings of 1923.

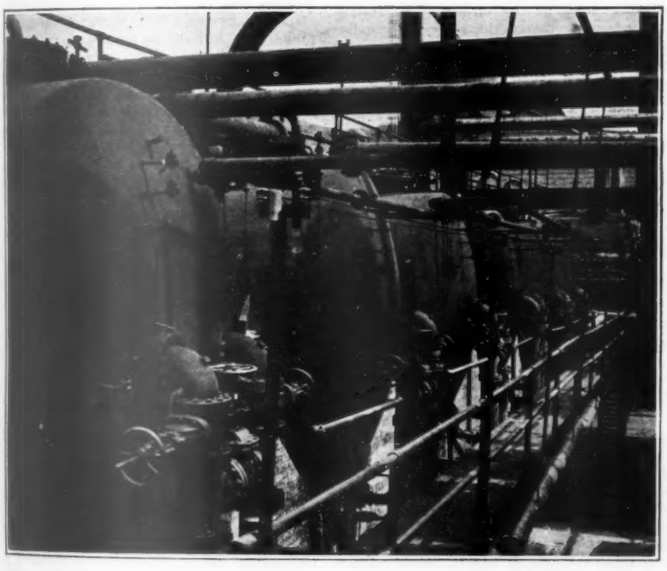
Changes in Pennsylvania Refining

Modern Methods and Equipment Supplanting Former Practices. Efficient Refrigeration Machinery and Power Plant Described

By L. D. Fulton and W. S. Zehrung
Superintendent and Assistant Superintendent Pennzoil Co., Oil City, Pa.

About the first records we have of distillation of crude petroleum are for March, 1858, when the Kerosene Oil Co. purchased from A. C. Ferris a small quantity of crude oil, which was distilled and found to produce a fair grade of illuminating oil. However, slight consideration was given the matter until after the Drake well was drilled in August, 1859, which produced about 2,000 bbls. during that year.

Step by step the oil industry developed. It was found that crude oil would produce a very good grade of lubricating oil as well as burning oil. Lubricating oil was made by the redistillation of tar or bottoms from light or burning oil distillation. These bottoms were of about 21 degrees Baume, and were run in tar or coking stills, equipped with all aerial separating coils, which provided means of running three streams of different gravity.



—Photo by Gruber.

Rear view continuous battery of stills operating at Pennzoil Co. plant.

After the discovery was made that alternate treatments with sulphuric acid and caustic soda solution would improve the color and odor of the burning oil, the method was applied to the heavier fractions of the distillate with satisfactory results. Great masses of what is now known as acid sludge on the sites of old refineries testify to the extent of the use of this practice, and although it is now superseded by filtration methods in modern refineries handling Pennsylvania crudes, it persisted for years. These heavier distillates, after their treatment with acid and alkali, were cooled with ice, placed in canvas bags, and pressed in vertical hydraulic presses for the purpose of removing the crystalline wax.

Modern Contrast

Today a similar distillate is chilled in long coolers using brine as the chilling medium. Proper agitation is provided so that every particle of wax and oil is cooled to the desired point, and the brine or water solution of calcium chloride is circulated through a cooler and the heat removed by the direct expansion of ammonia. Long rows of plate and frame presses receive the oil and wax mixture and the wax is quickly and thoroughly separated. This is the first striking contrast that appeals to the old refiner when entering a modern refinery.

About 1872 one Robert Vancicle conceived the idea of what is now termed steam distillation or bottom steam in crude distillation. It was found that this method produced what (referring to the lubricating fractions) is termed wax distillate as an overhead fraction and steam refined oil was left in the still. This method was found to produce a very much better grade of lubricating oil, somewhat higher in gravity and much better viscosity.

From time to time the improvements outlined in a preceding paragraph have been developed in the method of cooling and pressing for the purpose of removing the crystalline wax.

The first installation of the continuous chilling machines was developed at the plant of the Germania Refining Co. and this was one of the first and most important improvements which has been adopted by the entire industry.

From this time the oil refiners began to realize that refining required the same study and econmical engineering methods as were followed in other manufacturing lines. The Germania Refining Co. was among the first to realize this and following the development of the automobile, which called for an oil of high heat resisting qualities with a uniform viscosity, the Germania (now the Pennzoil Co.) developed one of the most modern plants for the manufacture of this grade of lubricating oil.

Manufacture of Wax

It is a well known fact that crystalline wax and amorphous wax cannot be removed by the same method or in other words, crystalline wax from distillate oil can be removed by filter pressing, while amorphous wax from the heavier fractions must be removed by the centrifuge method.

Before the centrifuge method was developed it was discovered that crude oil would settle out the amorphous wax when standing undisturbed in the winter time. This led to the development of the "settling" system for the removal of such wax. Large tanks were built and thoroughly insulated. Brine coils were placed in them and the temperature gradually lowered, and finally held constant at a predetermined temperature. The heavier waxes settled to the bottom and the upper layer of clear oil was drawn off and pumped to the stills. This oil became the first commercial Bright Stock. When it was discovered that centrifugal methods would remove this wax continuously and more rapidly, the centrifuge became a prominent factor in the production of such oil. At first it was considered necessary to cool small tanks of the oil gradually and run them separately, but with the need for some recovery of the enormous amount of energy expended in cooling the oil, a continuous system of chilling was developed and patented by Mr. Fulton, which allowed both speed and an economical operation.

Other economies practiced by this company, which have attracted much attention, are many.

The refrigeration machinery consists of one 100-ton York double pipe system and two 65-ton Carbondale atmospheric types. These machines are close to the still department for the purpose of utilizing the steam generated by the Fulton Economizers, in which steam is generated by the vapors from distillation between the still and condensors.

The ammonia coolers are located separately both at the wax plant and the centrifuge plant. Liquid anhydrous is supplied through small lines about 600 feet long with large gas return lines to the absorbers. This system requires very little insulation and shows good operating economy.

Power Plants

When the first refineries were built, huge central power stations did not exist. But with their development and operation at extremely high efficiencies the refiner has been able to tear a leaf from the steam engineer's book and build small but efficient power plants, too. At first the horizontal return tubular boilers were considered sufficient to generate what steam was needed for the stills and for pumps. These were later supplanted with water tube boilers, hand fired to be sure, but offering a smoother steam production and greater capacity. Still the refineries were buying electric power on the outside, for electric driven pumps had been slowly adopted. Then the idea that steam could be used twice was developed, and today a refinery that is not giving attention to this side of power production is a rare occurrence.

The Pennzoil Co.'s plant No. 1 is equipped with three 410 h.p. Geary boilers with Westinghouse underfeed stokers, coal crusher, elevator, coal hoppers, and weighing larry. By this means the coal supplied to each boiler is weighed and checked against generated steam measured by General Electric flow meters on each boiler. The plant is equipped with steam ash conveyors.

Steam is generated at 150 pounds, 100

(Continued on Page 176)

—Photo by Gruber.

Boiler plant of Pennzoil Co., showing stokers, forced draft, fans and weighing larry.

Doing One Thing and Doing It Well

"Specialization"—"Efficiency"—these two words are important in present business. They mark a concentrated effort towards perfection.

But to reach perfection, it is essential that every part of business work smoothly. This brings us back to specialization—each part of the business must do its work and do it well.

In the oil business there are the refineries. It is their job to change crude oil into a usable and marketable condition.

Another part of the oil business is the retailer. It is his job to have modernly equipped, conveniently located filling stations to cater to the demand of the consumer.

A third part of the oil business—working between the refiner and the retailer—is the oil jobber—such as the ACME PETROLEUM CO. It is our job to economically buy oils from the refineries and distribute them to the filling stations.

By doing this one thing and doing it well, we are a constant market for the refineries. They are saved the expense of storage and of selling to a large number of small accounts. In turn, the retailers have a central place where they can always refresh their stock of different oils to meet the various demands of the consumer.

Our own storage tanks and tank cars enable us to specialize in this service at a profit to both the refineries and the filling stations.

If you are not using this service, give ACME a call today—it will pay you.

(This is twenty-sixth of a series of informatory advertisements on distribution problems with which the Oil Industry has to contend.)

ACME

Petroleum Company

Executive Offices: 624 S. Michigan Ave., Chicago

KANSAS CITY, MO. Land Bank Bldg. **DALLAS, TEXAS** Magnolia Bldg.

OIL STORAGE PLANTS

Over 7,000,000 Gallons Storage

West Tulsa, Okla. Blue Island, Ill.

(Chicago Switching District)

CHICAGO STOCKS LOW; RECORD DEMAND

Prices Substantially Higher But Marketers Hesitate Lest Advance Be Too Rapid. Kerosene Dull, Prices No Stronger. Fuel Oil Weak Due to Smackover. Muffled Price Cutting on Gasoline in Some Sections

By J. B. Waldo

CHICAGO, April 18.—Last week it was stated that the gasoline market in this city was showing some firmness, the result of the large consumption and particularly the prospective large demand from consumers over the coming week-end Easter Sunday was a beautiful day and the demand for gasoline was very large. Small and unimportant suburban filling stations showed a gallonage ruuning to unprecedented totals. One small outlying station dispensed 1,400 gallons, another 1,800 gallons, another very small station sold 1,000 gallons.

The result has been a good demand for replenishment of the station tanks, and as most of the orders were accompanied with instructions to rush deliveries, it seems most likely the stocks of gasoline in the country are at a low ebb. Refiners who have a long list of of contracts with distributors state deliveries on contracts are 100 per cent and that there has been some ordering of April gasoline on March account possibly for the purpose of securing March quality, as under the majority of contracts the beginning of April permits the refiner to ship a lower gravity than during the winter. The very excellent transportation the railroads are now giving petroleum products permits the jobber to operate with a smaller stock of supplies than was possible when it took twice as long for deliveries from Group 3. This enables the jobber to do business on a smaller investment but requires that deliveries be prompt if he is to keep his supplies adequate.

The entry of the Carter Oil Co., as a purchaser for the account of the Standard Oil Co. (New Jersey) into the Mid-Continent Field was a further aid to the market and present prices are substantially higher than a week ago. Some marketers have been a little backward in advancing quotations. The larger companies have advanced their prices steadily a quarter of a cent at a time all the week and at the close the prices for U. S. Motors gasoline ranged from a low of 10½ cents to a high of 11 cents, with the feeling that another favorable week-end would see the market firmly established on a 11-cent basis and possibly higher prices to prevail according to demand. Higher gravities are neglected. The demand for natural gasoline is light and prices have been easy in spite of a report that one of the largest producers has been in the market buying for its account.

Regarding kerosene there has developed a difference of opinion. The Sinclair Refining Co. has again been buying kerosene in the open market and some refiners and marketers report an improvement in the demand but the majority of the trade fail to note any difference and while they would welcome the idea, they say they have failed to notice any real demand. As it is, the average idea is that kerosene is dull and prices no stronger. If this is not the case generally the exceptions are not important yet.

There is practically no demand for distillates for domestic use, the season being past. Regarding gas oils, the situation is varied. Some reports have been made of extensive purchases by The Texas Co., but if these have been made there is little effect on this or the refinery markets. Refiners as a rule have not been offering much straight run gas oil. The demand is rather uneven.

Fuel Oil Weak

The fuel oil market has developed considerable weakness and prices have declined to something less than $1.00 a barrel to the trade. One concern reported it sold 24 cars on Thursday at $1.00 but could not get that price on Friday. On the other hand, one of the largest marketers of fuel oil was inquiring for 200 cars for delivery over 30 days. The situation at Smackover has doubtless had a good deal to do with the situation in refinery fuel oil in this market.

The trade opinion here is that fuel oil may go lower.

Lubs Unchanged

Lubricating oils are being moved in considerable quantities to the jobbing trade but there is little of note in the situation. The greater sale of gasoline by jobbers is accompanied by a larger distribution of oils and greases for motor uses and this is being felt by refiners, who report steady business at unchanged prices. The exporters are buying little, but deliveries on contracts are active although little new business is being placed as foreign buyers are unwilling to pay present prices. The result of the decline in Pennsylvania crudes is to weaken the market for eastern lubricants. The industrial demand is steady and of good volume. The market for wax is showing more life, several inquiries and some offers being at hand recently. Prices are firm at some advances.

Muffled Price Cutting

There is considerable muffled price cutting going on in parts of the West and Southwest. These are the turbulent sections of the country. South Dakota prices are badly cut and the Standard has been obliged to meet these local reductions. There seems to be less and less regard given by the larger companies to the normal price scale and more and more willingness to treat price cutting as a local condition due to local competition.

Effective this morning, the Roxana Petroleum Corp. reduced its tank wagon and station prices in Chicago and suburbs 1 cent a gallon. Later in the day the Standard Oil Co. (Indiana) announced it would meet this price and effective April 19, (Sunday morning) the price of gasoline at stations and tank wagon would be 18 cents at the wagon and 20 cents at the station, with a quantity price of 17 cents for deliveries of 100 gallons or more at one time. Other companies had taken no action at this writing but undoubtedly Sinclair, Texas and other companies will meet the cut.

COMMISSIONER ASKED IN MISSOURI OUSTER

JEFFERSON CITY, Mo., April 18.—A motion was filed in the Supreme Court en banc by the Standard Oil Co. for appointment of a special commissioner to take testimony in the quo warranto proceedings instituted last year by the Attorney General to revive the ouster against the company under the judgment of June 28, 1913, for violations of the anti-trust law. The motion will not be opposed by the State, Attorney General Otto said.

The case is docketed for hearing in the court en banc on May 7.

WORTHAM RATE COMPROMISE

AUSTIN, Tex., April 18.—Following a decision by the district court here that the 13-cent rate prescribed by the Texas Railroad Commission on crude oil from the Wortham Field to Dallas was too high, a compromise rate of 11 cents was agreed on. The suit was brought by the Clayton Oil & Refining Co., of Dallas, which contended for a 10-cent rate.

EASTERN MARKET REMAINS FIRM; LESS SPOT GASOLINE AVAILABLE

By N. O. Fanning

NEW YORK, April 18.—The eastern refined oil markets remained firm during the past week. No significant price changes were announced except an advance of 1 cent in New Navy at refinery, Bayonne, to 15 cents. This is attributed to the fact that local refiners have less spot gasoline available.

Sales of gasoline in this territory so far in April have run considerably ahead of those of last month and have also exceeded sales of April last year. The weather has been so favorable local marketers were caught unawares. As a result there has been a rush to produce more and there have been renewed purchases of Mid-Continent gasoline on the part of Atlantic Coast refiners.

One authority, a representative of one of the largest Atlantic Coast gasoline marketers, says he sees no possible reason for a reduction in the price of gasoline in this territory, and believes there will be advances within the next month or two, due to the unusually good weather and consequent strong statistical position of the market.

There has been an unusually heavy movement of high-grade oil from the Gulf Coast to the Atlantic Seaboard, which is apparently due to the need for additional gasoline. Receipts of refined oil have also been unusually great, especially from the Port Arthur district.

Despite all these apparently favorable factors, there does not seem to be much optimism in oil trade circles. This is attributed largely to the fear that the oil business will repeat its experiences of former years and overproduce. The great increase in Arkansas production is pointed to as a development unfavorable to the oil markets, and many who thought price increases early in the year were excessive are now saying "I told you so."

California Still Factor

So far as the Atlantic Coast gasoline situation is concerned California seems to be the sole remaining unfavorable influence, inasmuch as California gasoline is coming in here at a rate reported to be 10,000,000 gallons a week. However, all of this gasoline is in strong hands and there is no danger of California gasoline unduly depressing the market, especially since it costs a great deal to deliver.

It appears that usually the biggest unsettling factor in the eastern markets has been an oversupply of gasoline in the Mid-Continent, because refiners in that district are apt to ship their products East whenever they can find no other market for it, and they usually offer it at concessions. This was said to be the cause of the decline of 1 cent per gallon in the tank wagon market in New Jersey and States south of that about two weeks ago. But this offering of distress gasoline is less urgent now, and has hardly scratched the surface of the market in New York and New England. It is difficult to see, therefore, why tank wagon prices should be cut further. On the contrary, as can be seen, there are many reasons why the price should advance as consumption increases seasonally.

Fuel Oil Soft

The local bunker oil market is still quoted at $1.80 per barrel, despite a decrease in prices at the Gulf Coast during the week, and despite the big imports of heavy oil from Mexico and larger production of heavy crude in the Southwest. Every factor points to an early reduction, however.

Diesel oil remains firm at $2.35 per barrel. The consumption of this product has been steadily increasing, and much interest has been aroused in the development of Diesel engines for railroad locomotives in this territory. Apparently, the market for Diesel oil will grow to be a highly important factor in the oil situation within a very few years.

Furnace Oil Firm

Furnace oil is firm, but is still quoted at 10 cents per gallon. The Standard Oil Co. of New York is understood to have expanded its furnace oil business greatly during the last few months, although its campaign has not much more than started. The increase in the use of furnace oil is attributed partly to the high rate of new construction of office buildings and apartments in the larger cities of New York and New England, many of which, if not most, are being equipped with oil burners for heating purposes.

The Standard Oil Co. of New York now has an oil burner of its own on the market.

Lubricants Soft

The market for lubricants is soft, due to weakness in crude oil prices in the Gulf Coast and Pennsylvania districts. Consumption of cylinder oils has improved considerably during the past week, but the demand for red and pale oils is still slow.

Oil Exports Small

The oil export market was colorless during the past week, inquiries being small and the actual movement greatly contracted. It is quite plain that heavy purchases and shipments early in the year have resulted in building up stocks abroad, and until these supplies are depleted, new business is likely to be small.

Reports that gasoline is firming up in the Mid-Continent may stimulate interest in the market on the part of foreign buyers, who watch domestic developments closely.

Case oil shipments were about the only encouraging spot in the movement from New York reported during the past week Exports of gasoline in cases aggregated approximately 1,887,800 gallons and of kerosene, 1,745,430 gallons.

Lubricating oil also moved in cases on a large scale, aggregate exports being 256,100 gallons. Barrel shipments of lubricants slumped to 389,100 gallons.

Exports of paraffin wax in bags aggregated 1,303,940 pounds. No important shipments of crude scale were reported.

Europe Out of Market

The local export market is now being largely supported, as evidenced by the weekly shipments, by orders from South America, Africa and the Far East, where gasoline, kerosene and lubricating oil in cases are most in demand. This business, while large in the aggregate, consists of numerous small orders, and does not make for gallonage like the bulk export trade. The largest cased order, for instance, amounted to about 750,000 gallons, while bulk orders range usually from 1,500,000 to 3,000,000 gallons.

Principal Exports

The following table shows principal exports of petroleum and petroleum products from New York reported during the past three weeks (figures in gallons unless otherwise stated in parentheses):

Item. How Shipped—	Week Ended April 15	April 8	April 1
Gasoline:			
Cases	1,887,800	887,410	2,518,830
Kerosene:			
Cases	1,745,430	547,960	1,918,950
Lub. oil:			
Barrels	389,100	978,500	2,005,100
Cases	256,100	117,930	66,250
Lub. grease:			
Barrels	.....	508	1,266
Parrafin wax:			
Bags (lbs.)	1,303,940	11,000	1,608,080
Barrels	.....	1,580	575
Pet. asphalt:			
Barrels	.....	869	.....
Pet. coke:			
Tons	.....	1,032	.....
Crude oil:			
Barrels	1,727	3,981	.....

No bulk shipments of petroleum from New York have been reported since March 16, last.

Oil Receipts Gain

Estimated receipts of crude and refined oil at Atlantic ports by tanker during the week ended April 15 averaged 643,000 bbls. daily, against 480,000 bbls. daily during the week ended April 8.

Receipts from the Gulf Coast reached a record daily average of 412,000 bbls. During the first two weeks of April, receipts by water from the Gulf have averaged more than 363,000 bbls. daily, against an actual daily average of 273,000 bbls. in March. Although it is probable receipts from the Gulf during the last half of April will not equal those of the first half, there are indications that Atlantic Coast refiners and marketers will continue to move a larger quantity of crude and refined from the Gulf than has been the case in recent months.

Receipts from California during the past week averaged 128,000 bbls. daily, against 49,000 bbls. daily the preceding week. At least half of the receipts consisted of refined oil and about one- fourth, or 32,000 bbls. daily, represented gasoline shipped from San Francisco refineries, which figures at about 10,408,000 gallons for the week.

Imports during the week averaged 103,000 bbls., a decrease of 13,000 bbls. as compared with the average for the preceding week. Of the imports, 10,000 bbls. daily came from Venezuela to the Fall River plant of the New England Oil Refining Co.

The following table shows daily average receipts of crude and refined oil by water at Atlantic ports from the Gulf and Pacific Coasts of the United States, and imports, for the last three weeks; also monthly record for the last 12 months (figures in barrels):

	Week Ended April 15	April 8	April 1
Gulf Coast	412,000	315,000	296,000
Pacific Coast	128,000	49,000	52,000
Imports	103,000	116,000	129,000
Total	643,000	480,000	477,000

Daily Averages by Months

	Gulf	Pacific	Imports	Total
March, 1925	273,000	82,000	135,000	490,000
February	262,000	51,000	147,000	460,000
January	311,000	77,000	133,000	521,000
Dec., 1924	306,000	83,000	85,000	474,000
November	246,000	80,000	150,000	476,000
October	246,000	120,000	88,000	454,000
September	270,000	104,000	101,000	475,000
August	310,000	127,000	84,000	521,000
July	318,000	85,000	114,000	517,000
June	302,000	133,000	136,000	571,000
May	276,000	122,000	144,000	542,000
April	262,000	143,000	123,000	528,000

The foregoing estimates are based on the capacity of incoming oil-laden tankers.

CALIFORNIA RECEIPTS AND PETROLEUM IMPORTS

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended April 11 totaled 652,000 bbls., a daily average of 93,143 bbls., against 356,000 bbls., a daily average of 50,857 bbls. for the week ended April 4 and a daily average of 95,107 bbls. for the four weeks ended April 11.

At Atlantic Coast Ports—	
Boston	70,000
New York	326,000
Philadelphia	107,000
Others	149,000
Total	652,000
Daily average	93,143
At Gulf Coast Ports—None.	
Total Atlantic and Gulf Coast ports	652,000
Daily average	93,143
Daily average four weeks ended	95,107

According to figures collected by the American Petroleum Institute imports of crude and refined oils at the principal ports for the week ended April 11 totaled 1,458,000 bbls., a daily average of 208,286 bbls., compared with 1,521,000 bbls., a daily average of 217,286 bbls. for the week ended April 4 and a daily average of 226,607 bbls. for the four weeks ended April 11.

At Atlantic Coast Ports—	
Baltimore	69,000
Boston	65,000
New York	577,000
Philadelphia	120,000
Others	168,000
Total	999,000
Daily average	142,714
At Gulf Coast Ports—	
Galveston district	105,000
New Orleans and Baton Rouge	184,000
Port Arthur and Sabine district	77,000
Tampa	93,000
Total	459,000
Daily average	65,572
At All U. S. Ports—	
Total	1,458,000
Daily average	208,286

NEW DISTRICT MANAGER

C. M. Powell has been made district manager for the International Derrick & Equipment Co., with headquarters in Tulsa. Mr. Powell was formerly district salesman for Black, Sivalls & Bryson in the Wichita Falls, Tex., area, and previous to that was with the Bridgeport Machine Co., at Wichita, Kansas.

EASTERN CRUDE CUT THOUGHT DISCOUNTED

OIL CITY, Pa., April 18.—The reductions in Eastern crude oil prices, including all grades of Pennsylvania crude, were the most interesting features of the week to the refiners and jobbers of northwestern Pennsylvania. Although the market still seems a little uncertain the majority of the refiners and jobbers in this district believe the crude price drops will have little influence on the prices of Pennsylvania refined products unless it is followed by tank wagon cuts in the territory served from the northwestern Pennsylvania refineries. They are of the opinion the crude declines were already discounted in the refined market.

Outside of the crude price changes the feature in these markets was an excellent demand for both gasoline and kerosene. Gasoline has shown a much firmer trend on increased demand. Actual consumption is also greater with good motoring weather and the fishing season drawing thousands of sportsmen. The price also was stronger until today.

There was quite a little spurt in the demand for kerosene. Some refiners still have some of the product which they have been willing to sacrifice, in order to move it.

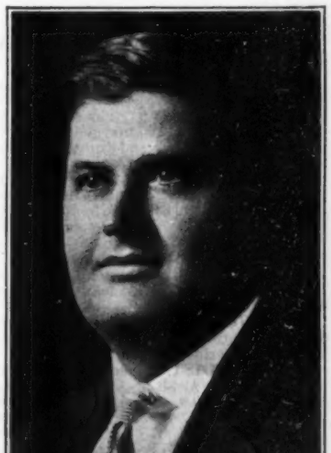
Fuel oil has been weak and the movement has been very slow. All the cylinder stocks have been slow with low prices and the same condition holds with respect to neutrals.

There has been a little flurry in wax with many different prices being quoted and the market uncertain.

J. W. McCULLOCH LEAVES INDEPENDENT OIL & GAS

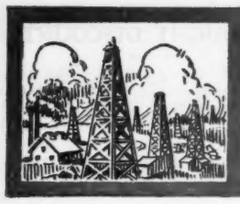
J. W. McCulloch, vice president and general manager of the Independent Oil & Gas Co. of Okmulgee, severed all active connections with the company effective April 18.

Mr. McCulloch was one of the founders of the Independent, and together with Ed Moore, president, he nursed that concern through the long dark days of the 1921 depression in the oil business.



J. W. McCulloch

When the Independent Oil & Gas Co. was formed, Mr. McCulloch was possessed of a varied experience in the business, but little cash. He readily invested what he had in the new concern, and the profits he immediately put into more Independent stock. With its phenomenal increases in valuation and handsome dividends, his unlimited faith in the Independent has made him a millionaire. He has on numerous occasions announced that after the stock had yielded a good return on the investment to all his friends, he would withdraw from active connection with the firm, and this, combined with his recent poor health, is the direct cause of his retirement.



REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	April 21		April 14		April 7	
OKLAHOMA (Group 3)—						
50-52 450 end point (Naphtha)	.10	.10¼	.09¼	.09½	.09¼	.09½
56-58 450 end point	.10	.10¼	.09¼	.09½	.09½	.09¾
58-60 437 end point (U. S. Motor)	.10½	.10¾	.09¾	.10	.09¾	.10
60-62 400 end point	.11½	.11¾	.11	.11¼	.11½	.11¾
64-66 375 end point	.13	.13¼	.12	.12¼	.12¼	.12¾
68-70 350 end point	.13¼	.13½	.12¾	.13	.13	.13¼
KANSAS—						
58-60 437 end point (U. S. Motor)	.10½	.10¾	.10	.10¼	.10	.10¼
NORTH TEXAS—						
48-52 450 end point (Naphtha)	.10	.10¼	.09¼	.09½	.09¼	.09½
50-52 440 end point (Naphtha)	.10	.10¼	.09¼	.09½	.09¼	.09½
56-58 450 end point	.10	.10¼	.09¼	.09½	.09½	.09¾
58-60 437 end point (U. S. Motor)	.10¼	.10½	.09¾	.10	.09¾	.10
60-62 400 end point	.11½	.11¾	.11	.11¼	.11½	.11¾
64-66 390 end point	.12¾	.13	.11¾	.12	.12¼	.12¾
64-66 375 end point	.13	.13¼	.12	.12¼	.12¾	.13
68-70 360 end point	.13¼	.13½	.12¾	.13	.13	.13½
NORTH LOUISIANA—						
56-58 450 end point	.10¼	.10½	.10	.10¼	.10	.10¼
58-60 437 end point (U. S. Motor)	.10½	.10¾	.10¼	.10½	.10¼	.10½
60-62 400 end point	.11½	.12	.11½	.12	.11½	.12
64-66 390 end point	.12¾	.13	.12¾	.13	.13	.13¼
64-66 375 end point	.13¼	.13½	.13¼	.13½	.13¼	.13½
ARKANSAS—						
58-60 450 end point	.10¾	.11	.10	.10¼	.10	.10¼
58-60 437 end point (U. S. Motor)	.11	.11¼	.10¼	.10½	.10¼	.10½
64-66 375 end point	.13	.13¼	.12¾	.13	.13	.13¼
ROCKY MOUNTAIN STATES—						
*58-60 437 end point (U. S. Motor)	.12¾	.13	.12¾	.13	.13¼	.13½
PENNSYLVANIA—						
52 Naphtha	.12¾		.12¾		.12¾	
54 Naphtha	.12¾		.12¾		.12¾	
56 Gasoline	.13		.13		.13	
58 Gasoline	.13		.13¼		.13¼	
60 Gasoline	.13¾		.14		.14	
62 Gasoline	.14½		.14¾		.14¾	
64 Gasoline	.15		.15		.15	
66 Gasoline	.16		.16		.16	
68-70 Gasoline	.18		.18		.18	
CALIFORNIA—						
54-56 437 end point (U. S. Motor) domestic	.11	.11½	.11	.11½	.11	.11½
CHICAGO DIST. (Based on Group 3)—						
50-52 450 end point (Naphtha)	.09½	.09¾	.09½	.09¾	.09¾	.10
56-58 450 end point	.10	.10¼	.09½	.09¾	.09¾	.10
58-60 437 end point (U. S. Motor)	.10½	.10¾	.10		.10¼	.10½
60-62 400 end point	.11½	.11¾	.11¼	.11½	.11¼	.11¾
64-66 375 end point	.12¼	.12½	.12¼	.12⅞	.12¼	.12¾
68-70 360 end point	.13	.13¼	.13	.13¼	.13¼	.13½

NATURAL GASOLINE

	April 21		April 14		April 7	
OKLAHOMA (Group 3)—						
⌈Grade Double A, 80-87.9, 375 e.p., rec. 90%	.10		.09	.09¼	.09	.09¼
⌊Grade A, 72-79.9, 375 end point, rec. 90%	.10		.09	.09¼	.09	.09¼
⌈Grade Double B, 84-92, 375 e.p., rec. 95%	.09		.08		.08	.08¼
⌊Grade B, 76-83.9, 375 end point, rec. 85%	.09		.08		.08	.08¼
Grade C, 80-90, 375 end point, rec. 78%	.08¼	.08½	.07	.07¼	.07	.07¼
NORTH TEXAS—						
⌈Grade Double A, 80-87.9, 375 e.p., rec. 90%	.10		.09	.09¼	.09	.09¼
⌈Grade A, 72-79.9, 375 end point, rec. 90%	.10		.09	.09¼	.09	.09¼
⌈Grade Double B, 84-92, 375 e.p., rec. 85%	.09		.08		.08	.08¼
⌊Grade B, 76-83.9, 375 end point, rec. 85%	.09		.08		.08	.08¼
Grade C, 80-90, 375 end point, rec. 78%	.08¼	.08½	.07	.07¼	.07	.07¼
NORTH LOUISIANA—						
Grade A, 72-79.9, 375 end point, rec. 90%	.09¾	.10	.09½		.09	.09½
Grade B, 76 83.9, 375 end point, rec. 85%	.09¼	.09½	.08½		.08¾	.09
Grade C, 80-90, 375 end point, rec. 78%	.08½		.07¾		.07¾	.08
CALIFORNIA—						
68-80 absorption, 360-390 end point	.13½	.14	.13	.13½	.13	.13½
78-84 compression, 350 end point	.13		.13½		.13½	
CHICAGO DIST. (Based on Group 3)—						
⌈Grade Double A, 80-87.9, 375 e.p., rec. 90%	.09	.09¼	.09	.09¼	.09	.09¼
⌊Grade A, 72-79.9, 375 end point, rec. 90%	.09	.09¼	.09	.09¼	.09	.09¼
⌈Grade Double B, 84-92, 375 e.p., rec. 85%	.08	.08¼	.08	.08¼	.08	.08¼
⌊Grade B, 76-83.9, 375 end point, rec. 85%	.08	.08¼	.08	.08¼	.08	.08¼
Grade C, 80-90, 375 end point, rec. 78%	.07¼	.07½	.07	.07½	.07	.07½

MOTOR NATURAL GASOLINE (BLENDS)

	April 21		April 14		April 7	
OKLAHOMA (Group 3)—						
60-62 450 end point	.10	.10¼	.09¼	.09½	.09¾	
64-66 437 end point	.10	.10¼	.09¼	.09½	.09¾	
68-70 430-435 end point	.10	.10¼	.09¼	.09½	.09¾	
NORTH TEXAS—						
58-62 440 end point	.10	.10¼	.09¼	.09½	.09¾	
58-60 450 end point	.10	.10¼	.09¼	.09½	.09¾	
PENNSYLVANIA—						
*60-62	.13		.13		.13½	
*64-66	.13		.13		.13½	
*66-68	.13		.13		.13½	
*68-70	.13		.13		.13½	
CHICAGO DIST. (Based on Group 3)—						
60-62 450 end point	.09	.09¼	.09¾	.10	.09¾	.10
64-66 450 end point	.09	.09¼	.09¾	.10	.09¾	.10
68-70 437 end point	.09¼	.09½	.10	.10¼	.10	.10¼

*At Sistersville, W. Va.

BURNING OIL

	April 21		April 14		April 7	
KANSAS—						
41-43 water white Kerosene	.04¼	.04½	.04¼	.04½	.04¼	.04½
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04	.04¼	.04	.04¼	.04	.04½
42-44 water white Kerosene	.04¼	.04½	.04¼	.04½	.04¼	.04⅝
40-41 prime white Kerosene	.03¾	.04	03¾	.04	.03¾	.04
NORTH LOUISIANA—						
41-43 prime white Kerosene	.04½	.04¾	.04¾	.05	.04¾	.05
42-44 water white Kerosene	.04¾	.05	.05	.05¼	.05	.05¼
ROCKY MOUNTAIN STATES—						
*40-42 water white Kerosene	.07	.07¼	.07	.07¼	.07	.07¼
NORTH TEXAS—						
41-43 water white Kerosene	.04	.04⅛	.04	.04⅛	.04	.04⅛
40-42 prime white Kerosene	.03¾		.03¾		.03¾	
41-43 prime white Kerosene	.04	.04⅛	.04	.04⅛	.04	.04⅛
42-44 water white Kerosene	.04¼	.04½	.04¼	.04½	.04⅛	.04⅜
ARKANSAS—						
41-43 water white Kerosene	.04½	.04¾	.04½	.04¾	.04¾	.05
42-44 water white Kerosene	.04¾	.05	.04¾	.05	.05	.05¼
PENNSYLVANIA—						
43 Kerosene prime white	.06⅝		.06⅝		.06⅝	
45 Kerosene water white	.06½		.06¾		.06¾	
46 Kerosene water white	.07¼		.07¼		.07¼	
47 Kerosene water white	.07¾		.07¾		.07¾	
34 Neutral	.07½		.07½		.08	
34 Sundebloomed Neutral	.08½		.08½		.09½	
36 Miners' Neutral	.07½		.07½		.07½	
300 Mineral Seal	.07½		.07½		.07¾	
CALIFORNIA—						
40-42 water white (high burning test)	.07½	.08	.07½	.08	.07½	.08
Engine distillate, 43-45 445 end point	.08½	.09	.08½	.09	.08½	.09
Engine distillate, 42-44 480 end point	.07¾	.08	.07¾	.08	.07¾	.08
CHICAGO DIST. (Based on Group 3)—						
41-43 water white Kerosene	.04½	.04¼	.04⅛	.04¼	.04⅛	.04⅛
42-44 water white Kerosene	.04¼	.04½	.04⅜	.04½	.04⅜	.04½

*Colorado points.

FUEL OILS

	April 21		April 14		April 7	
KANSAS—						
24-26 Fuel Oil	1.10	1.15	1.15	1.20	1.20	1.25
32-36 Gas Oil	.03¼	.03½	.03¼	.03½	.03½	.03⅝
38-40 Distillate	.03½	.03⅝	.03½	.03⅝	.03½	.03⅝
OKLAHOMA (Group 3)—						
Below 22 Fuel Oil (sellers' cars)	.95		1.00	1.05		
22-26 Fuel Oil (sellers' cars)	1.02½	1.05	1.05	1.07½	1.05	1.07½
24-26 Fuel Oil (buyers' cars)	1.02½	1.05	1.05	1.07½	1.05	1.07½
24-26 Fuel Oil (sellers' cars)	1.02½	1.05	1.05	1.10	1.10	
28-30 Fuel Oil (sellers' cars)	1.07½	1.10	1.15	1.20	1.15	1.20
32-36 Gas Oil	.02⅞	.03	.03	.03⅛	.03	.03⅛
36-38 Distillate	.03	.03⅛	.03⅛	.03¼	.03⅛	.03¼
38-40 Straw distillate	.03⅛	.03¼	.03¼	.03⅜	.03¼	.03⅜
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	1.10	1.15	1.15	1.20	1.15	1.20
26-30 Fuel Oil	1.20		1.25		1.25	1.30
32-36 Gas Oil	.02⅞	.03	.03	.03⅛	.03⅛	.03⅜
36 38 Distillate	.03⅛	.03¼	.03¼	.03⅜	.03¼	.03⅜
38-40 Straw distillate	.03¼	.03⅜	.03⅜	.03½	.03⅜	.03½
NORTH LOUISIANA—						
18 20 Fuel Oil	1.00	1.05	1.10	1.15	1.10	1.15
32-36 Gas Oil	.03¼	.03½	.03½	.03¾	.03½	.03¾
ARKANSAS—						
38-40 Distillate	.03¼	.03½	.03¾	.03⅞	.03¾	.03⅞
32-36 Gas Oil	.03¼	.03½	.03¼	.03½	.03½	.03⅝
22-26 Refinery Fuel Oil	1.00	1.05	1.05	1.10	1.10	1.15
GULF COAST (South Texas)—						
Gas Oil	.04¾	.05	.04¾	.05	.04¾	.05
Fuel Oil	1.60	1.65	1.65	1.70	1.65	1.70
PENNSYLVANIA—						
30 34 Fuel Oil	.04½		.04½		.04½	
36-40 Fuel Oil	.05½		.05½		.05½	
CALIFORNIA—						
33-36 Distillate	.04¾	.05	.04¾	.05	.04¾	.05
27-33 Distillate	.04	.04½	.04	.04½	.04	.04½
15-20 Fuel Oil (at tide water)	1.60	1.65	1.60	1.65	1.60	1.65
CHICAGO DIST. (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars, Group 3)	1.00	1.05	1.07½	1.12½	1.05	1.10
22-24 (El Dorado)	.97	1.02	1.05	1.10	1.05	1.10
18 20 (Smackover)	.95	1.00	1.05	1.10	1.05	1.10
32-36 Gas Oil	.03¼	.03¼	.03¼	.03¼	.03½	.03¾
36-38 Distillate	.03¼		.03⅜		.03½	.03⅝
38-40 Straw distillate	.03½		.03½		.03⅜	.03½

LUBRICATING OILS AND WAX

	April 21		April 14		April 7	
OKLAHOMA (Group 3)—						
Neutrals:						
70-80 vis., 2½ color, 20-25 cold test	.07	.07½	.07	.07½	.07	.07½
100 vis., 2 color, 20-25 cold test	.08½	.09	.08½	.09	.08½	.09
100 vis., 3 color, 20-25 cold test	.08	.08½	.08	.08½	.08	.08½
150 vis., 3 color, 20-25 cold test	.10½	.11	.10½	.11	.10½	.11
150 vis., 4 color, 20-25 cold test	.10¼	.10¼	.10¼	.10¾	.10¼	.10¾
180 vis., 4 color, 23-28 cold test	.10¾	.11¼	.10¾	.11¼	.10¾	.11½
180 vis., 3 color, 23-28 cold test	.11	.11½	.11	.11¼	.11	.11½
200 vis., 3 color, 23-28 cold test	.12	.12¼	.12	.12½	.12	.12¼
200 vis., 4 color, 23-28 cold test	.11¾	.12¼	.11¾	.12¼	.11¾	.12½
220 vis., 3 color, 25-30 cold test	.12	.12½	.12	.12½	.12	.12½
220 vis., 4 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
240 vis., 3 color, 25-30 cold test	.16	.16½	.16	.16½	.16	.16½
240 vis., 4 color, 25-30 cold test	.15¼	.16	.15¼	.16	.15½	.16
280 vis., 3 color, 25-30 cold test	.17¼	.18	.17½	.18	.17½	.18
280 vis., 4 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
Red Neutrals:						
180 vis., 5 color, 23-28 cold test	.10½	.11	.10¼	.11	.10½	.11
180 vis., 6 color, 23-28 cold test	.14½	.15	.14½	.15	.14½	.15
200 vis., 5 color, 23-28 cold test	.11¼	.12	.11¼	.12	.11¼	.12
200 vis., 6 color, 23-28 cold test	.15¼	.16	.15¼	.16	.15½	.16
220 vis., 5 color, 25-30 cold test	.13½	.14	.13¼	.14	.13½	.14
220 vis., 6 color, 25-30 cold test	.17¼	.17¾	.17½	.17¾	.17¾	.17¾
240 vis., 5 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
240 vis., 6 color, 25-30 cold test	.18¼	.18¾	.18¼	.18¾	.18¼	.18¾
280 vis., 5 color, 25-30 cold test	.15½	.16	.15½	.16	.15½	.16

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

Cylinder Stocks—						
180-200 vis., S. R. green, 40-45 cold test	.09½	.10	.09½	.10	.09½	.10
190-200 vis., S. R. green, 40-45 cold test	.08½	.09	.08½	.09	.08½	.09
170-190 dark green, 40-45 cold test	.07½		.07½		.07½	
600, E filtered	.21¾		.21¾		.21¾	
190-200 vis. @ 210 "D" Bright Stock	.36		.36		.36	
200-210 vis. @ 210 "E" Bright Stock	.31		.31		.31	
150 vis. @ 210 "D" Bright Stock	.32		.32		.32	
150 vis. @ 210 "E" Bright Stock	.38		.38		.38	
Waxes:						
124-126 White Crude Scale Wax	.04½	.04¾	.04½	.04¾	.04⅛	.04¼
PENNSYLVANIA—						
150, 3 color	.19½		.20		.20	
180, 3 color	.21¾		.21¾		.22	
200, 3 color	.23¾		.23¾		.24	
220, 3 color	.25½		.25½		.26	
600, steam refined	.18		.18¾		.19	
635, steam refined	.22½		.22½		.22½	
650, steam refined	.25		.25½		.26	
600, Pennsylvania flash	.29		.33		.33	
630, Pennsylvania flash	.38		.38		.38	
*550, E filtered	.23		.23		.23	
*600, E filtered	.25½		.25½		.25½	
600, E filtered	.23		.23¾		.23¾	
600, D filtered	.29		.30½		.30½	
550, E filtered	.22		.22½		.22½	
550, D filtered	.25		.25½		.25½	
Pennsylvania Bright Stock	.37½		.37½		.37½	
122-124 White Crude Scale Wax	.04⅞		.04⅞		.05½	
†124-126 White Crude Scale Wax	.05		.05		.05¼	
GULF COAST (South Texas)—						
Zero Black	.06	.07	.06	.07	.07	.08
No. 2 color, 100 vis., pale oil	.09½	.10½	.09½	.10½	.10½	.11½
No. 2 color, 150 vis., pale oil	.11	.12	.11	.12	.12	.13
No. 3 color, 200 vis., pale oil	.14	.15	.14	.15	.15	.16
No. 3 color, 300 vis., pale oil	.16	.17	.16	.17	.17	.18
No. 3½ color, 500 vis., pale oil	.18	.19	.18	.19	.19	.20
No. 3½ color, 750 vis., pale oil	.23½	.24½	.23½	.24½	.24½	.25½
No. 4½ color, 1200 vis., pale oil	.26½	.27½	.26½	.27½	.27½	.28½
No. 4 color, 2000 vis., pale oil	.30	.31	.30	.31	.31	.32
No. 2 plus color, 150 vis., pale filtered	.21½		.21½		.23½	
No. 2 plus color, 200 vis., pale filtered	.23		.23		.25	
No. 2½ minus color, 300 vis., pale filtered	.26½		.26½		.28½	
No. 2½ color, 500 vis., pale filtered	.30½		.30½		.32½	
No. 2½ color, 800 vis., filtered	.40½		.40½		.42½	
No. 5 to 6 color, 200 vis., red oil	.12½	.13½	.12½	.13½	.13½	.14½
No. 5 to 6 color, 300 vis., red oil	.14½	.15½	.14½	.15½	.15½	.16½
No. 5 to 6 color, 500 vis., red oil	.16½	.17½	.16½	.17½	.17½	.18½
No. 5 to 6 color, 750 vis., red oil	.21½	.22½	.21½	.22½	.22½	.23½
CALIFORNIA—						
130 pale, 2½-3 color	.12	.12½	.12	.12½	.12	.12½
200 vis., 2½-3 color	.15½	.16	.15½	.16	.15½	.16
300 vis., 3 -3½ color	.17	.17½	.17	.17½	.17	.17½
350 vis., 3½-4 color	.18	.19	.18	.19	.18½	.19
400 vis., 3½-4 color	.20	.20½	.20	.20½	.20	.20½
Red Neutrals						
200 vis., 4½-5 color	.14	.14½	.14	.14½	.14	.14½
300 vis., 5 -6 color	.15	.15½	.15	.15½	.15	.15½
400 vis., 5 -6 color	.17	.17½	.17	.17½	.17	.17½
500 vis., 4½-5 color	.20	.21	.20	.21	.20	.21
500 vis., 6 -6½ color	.18	.19	.18	.19	.18	.19
600 vis., 6½ plus color	.19	.19½	.19	.19½	.19	.19½

*At Warren, Pa. †At New York City.

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK DOMESTIC MARKET

Bayonne Refinery Prices:	April 21	April 14	April 7
U. S. Motor Gasoline, 58-60 437	.15	.14	.15
*Bunker Oil, 14-16 Be.	1.80	1.80	1.80
Diesel Oil 28-30 Be.	2.35	2.35	2.35
Furnace Oil, New York City	.10	.10	.10
Gas Oil, 32-36 Be.	.06¾	.06¾	.06¾
41-43 Kerosene prime white	.06	.06	.06½

*Lighterage, 6.5c a barrel extra.

NEW YORK EXPORT PRICES

Motor Gasoline:	April 21	April 14	April 7
58-60 Be. gravity, in cases	.29.15	.29.15	.29.15
U. S. Navy, in bulk	.15	.15	.15
Naphtha:			
60° F., 59-61 Be. gravity, in bulk	.17¾	.17¾	.17¾
60° F., 63-66 Be. gravity, in bulk	.19	.19	.19
60° F., 66-68 Be. gravity, in bulk	.20½	.20½	.20½
Kerosene:			
Standard white, 40-42 Be. grav., in bulk	.06½	.06½	.06½
Standard white, 40-42 Be. grav., in barrels	.13½	.13½	.13½
Standard white, 40-42 Be. grav., in cases	.16.9	.16.9	.16.9
Water white, 42-44 Be. grav., in bulk	.07½	.07½	.07½
Water white, 42-44 Be. grav., in barrels	.14½	.14½	.14½
Water white, 42-44 Be. grav., in cases	.17.9	.17.9	.17.9
†Lubricating Oils:			
Cylinder Stock, extra filtered, 600, barrels	.45	.45	.46
Cylinder Stock, light filtered, 600, barrels	.40	.40	.41
No. 1 white Neutral, .878 spec. grav.	.44	.44	.44
No. 1 Summer Black, .895 spec. grav.	.17	.17	.20
No. 5 Bright Stock, 897 spec. grav.	.47	.47	.49
Special "A" red oil, .897 spec. grav., 170 vis.	.20	.20	.21
No. 2 red oil, .903 spec. grav., 212 vis.	.21	.21	.22
No. 1 red oil, .905 spec. grav., 265 vis.	.22	.22	.23
Polar red oil, .906 spec. grav., 295 vis.	.23	.23	.24
Pale oil, "25", .899 spec. grav.	.21½	.21½	.21½
Pale oil, "28", .892 spec. grav.	.17	.17	.17
Paraffin Wax:			
120-122 a.m.p., per lb.	.06¼	.06¼	.06¼
125-127 a.m.p., per lb.	.06⅜	.06⅜	.06⅜
130-132 a.m.p., per lb.	.06¾	.06¾	.06¾
135-137 a.m.p., per lb.	.07½	.07½	.07½

†All lube prices in barrels.

LOS ANGELES EXPORT PRICES

	April 21	April 14	April 7
Kerosene water white	.05½ .06	.05½ .06	.05½ .06
U. S. Motor gasoline, 54-56, 437 end point	.10½ .11	.10½ .11	.10½ .11

CRUDE OIL PRICES

Arkansas and North Louisiana

Caddo, 38° and above	$2.05
35° to 37.9°	1.95
32° to 34.9°	1.85
Below 32°	1.70
Homer, 35° and above	1.80
32° to 34.9°	1.70
31° to 32.9°	1.60
Below 31°	1.45
Haynesville, 33° and above	1.70
Below 33°	1.60
El Dorado, 33° and above	1.70
Below 33°	1.60
Bull Bayou, 38° and above	1.85
35° to 37.9°	1.70
32° to 34.9°	1.55
Cotton Valley	1.00
De Soto	1.90
Crichton	1.70
Bellevue	2.00
*Stephen, Ark.:	
Below 26°	1.25
26° and above	1.45

*Posted by Atlantic Oil Producing Co.

†Smackover: (Standard Oil Co. of Louisiana)

Below 24°	.60
Below 24° (to storage)	.40
24° to 24.9°	1.10
25° to 25.9°	1.20
26° to 26.9°	1.25
27° and above	1.30

†Gulf Refining Co. same as Standard except one price of .40 on below 24°.

(Posted by Texas Co.)

Below 24°	.60
24° to 25.9°	1.00
26° and above	1.30

(Posted by Atlantic Producing Co.)

Below 24°	.40
24° to 24.9°	1.10
25° to 25.9°	1.20
26° to 26.9°	1.25
27° to 27.9°	1.30
28° and above	1.30

Wyoming and Montana

Rock Creek (Wyo.)	2.00
Salt Creek	1.60
Big Muddy	2.00
Mule Creek	1.50
Grass Creek (light)	2.15
Elk Basin	2.15
Lance Creek	2.15
Osage	2.15
Cat Creek (Mont.)	2.15
Sunburst (Mont.)	1.40
Lost Soldier	1.28
Greybull and Torchlight	2.00
Hamilton Dome	1.60
Hogback, N. Mex.	2.20

Lost Soldier and Lander based on contracts.

Oklahoma, Kansas North and Central Texas

Prairie Oil & Gas Co. and other major purchasing companies, except as noted:

Below 30°	1.35
30° to 32.9°	1.55
33° to 35.9°	1.80
36° to 38.9°	2.00
39° to 41.9°	2.25
42° and above	2.35

Sinclair Crude Oil Purchasing Co.—

39° to 41.5°	2.25
41.6° and above	2.35

Magnolia Petroleum Co.:

Below 28°	1.00
28° to 30.9°	1.35
31° to 32.9°	1.55
Corsicana light	2.00
Corsicana heavy	1.00
Mexia and Wortham	2.00

Humble Oil & Refining Co.

Powell, Currie, Richland	2.00
Mexia and Wortham	2.00

Moran crude:

Below 30° gravity	1.35
30° to 32.9°	1.55
33° to 35.9°	1.80
36° and above	2.00

Ranger and North Texas, same as Prairie.

Gulf Coast

Grade A	1.75
Grade B	1.50
Luling (based on contracts 90c and	1.15
Laredo (Magnolia Petroleum Co.)	.85
Rockdale-Minerva (Milam County)	1.25
Calliham (Live Oak-McMullen)	1.15
Webb, Jim Hogg, Zapata	1.00
*High Island	1.20

*Posted by Sun Oil Co.

***Somerset**

Below 30°	1.25
30° to 32.9°	1.35
33° to 35.9°	1.80
36° to 38.9°	1.95
39° to 41.9°	2.10
42° and above	2.35

*Posted by Grayburg Oil Co.

California

14° to 19.9°	1.25
20° to 20.9°	1.27
21° to 21.9°	1.30
22° to 22.9°	1.33
23° to 23.9°	1.36
24° to 24.9°	1.40
25° to 25.9°	1.44
26° to 26.9°	1.48
27° to 27.9°	1.52
28° to 28.9°	1.56
29° to 29.9°	1.60
30° to 30.9°	1.64
31° to 31.9°	1.68
32° to 32.9°	1.72
33° to 33.9°	1.76
34° to 34.9°	1.80
35° and above	1.85

Rosecrans-Athens Field, only:

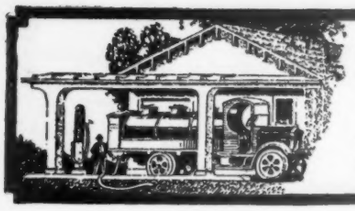
Below 35.9° gravity, same as other fields,	
36° to 36.9°	1.92
37° to 37.9°	2.00
38° to 38.9°	2.08
39° to 39.9°	2.16
40° to 40.9°	2.24
41° to 41.9°	2.32
42° and above	2.40

Eastern States

Penna Grade Oil in New York Transit Lines	3.40
Bradford District Oil in National Transit Lines	3.40
Penna Grade Oil in National Transit Lines	3.30
Penna Grade Oil in Southwest Pa. Pipe Lines	3.30
Penna Grade Oil in Eureka Pipe Line Lines	3.25
Penna Grade Oil in Buckeye Pipe Lines	3.15
Cabell Grade Oil in Eureka Pipe Line Lines	2.05
Corning Grade Oil in Buckeye Pipe Line Lines	1.85
Somerset Medium Oil in Cumberland Pipe Line Lines	2.15
Somerset Light Oil in Cumberland land Pipe Line Lines	2.30
Ragland Grade Oil in Cumberland Pipe Line Lines	.95
Gaines	3.15
Lima	2.23
Wooster	2.15
Illinois	2.02
Indiana	2.03
Princeton	2.02
Plymouth	1.55
Waterloo	1.10
†Oil Springs, Canada	2.95
†Petrolia, Canada	2.88
*Western Kentucky, 36° and above	2.05
*Western Kentucky, 33° to 35.9°	1.95
*Western Kentucky, 32.9° and below	1.85
Cumberland, Barren and Monroe Counties (Kentucky), (Paragon Development Co.)	2.30

†Plus Government bounty of 26½c.

(Continued on Page 172)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, April 21

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service Station	Incldg tax of	Tank wagon
Atlanta, Ga.	23.0	26.0	3.0	13.0
Augusta	23.0	26.0	3.0	15.0
Macon	23.0	26.0	3.0	14.5
Savannah	21.0	24.0	3.0	13.0
Birmingham, Ala	21.0	24.0	2.0	14.5
Mobile	20.0	23.0	2.0	12.5
*Montgomery	22.0	25.0	3.0	15.5
Clarksdale, Miss.	21.0	24.0	3.0	12.0
Jackson	21.0	24.0	3.0	10.0
Natchez	20.5	23.5	3.0	11.5
Vicksburg	20.5	23.5	3.0	11.5
Jacksonville, Fla.	21.0	24.0	3.0	13.0
Miami	23.0	26.0	3.0	14.5
Pensacola	21.0	24.0	3.0	13.5
Tampa	21.0	24.0	3.0	13.0
Lexington, Ky.	21.0	24.0	3.0	14.0
Covington	19.0	22.0	3.0	14.0
Louisville	21.0	23.0	3.0	12.0

*In addition to the State tax of 2 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and ½ cent on kerosene.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero
	Tank wagon	Service station	Incldg tax of	Tank wagon
Dallas, Texas	17.0	21.0	1.0	120.
Fort Worth	17.0	21.0	1.0	12.0
Houston	17.0	21.0	1.0	12.0
San Antonio	15.0	18.0	1.0	12.0
El Paso	18.0	21.0	1.0	13.0
Muskogee, Okla.	18.5	21.5	3.0	12.0
Oklahoma City	19.5	22.5	3.0	12.0
Tulsa	18.5	21.5	3.0	11.0
Ft. Smith, Ark.	22.0	24.0	4.0	12.0
Little Rock	22.0	23.0	4.0	10.0
Texarkana	19.0	22.0	1.0	12.0

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero
	Tank wagon	Service station	Incldg tax of	Tank wagon
Casper, Wyo.	21.5	23.5	2.5	13.0
Cheyenne	23.0	25.0	2.5	14.5
Albuquerque, N. M.	26.5	29.5	3.0	16.5
Salt Lake, Utah	24.0	26.0	3.5	18.0
Denver, Colo.	21.0	23.0	2.0	14.5
Pueblo	21.0	23.0	2.0	14.5
Butte, Mont.	23.0	25.0	2.0	16.0
Helena	25.0	27.0	2.0	17.0
Boise, Idaho	24.5	26.5	3.0	20.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero
	Tank wagon	Service station	Incldg tax of	Tank wagon
Albany, N. Y.	20.0	...	..	13.0
*New York	20.0	...	..	13.0
Buffalo	20.0	...	..	12.0
Rochester	20.0	...	..	13.0
Syracuse	20.0	...	..	12.0
Boston, Mass.	20.0	...	..	13.0
Providence, R. I.	20.0	...	..	13.0
Augusta, Me.	21.0	...	1.0	13.0
Manchester, N. H.	22.0	...	2.0	13.0
Burlington, Vt.	21.0	...	1.0	13.0

*Price in steel barrels.

Note: Standard Oil Co. of New York does not generally quote service station price in its territory. In most cases the service station price is 2 or 3 cents higher than tank wagon price.

PACIFIC COAST DISTRICT

Standard Oil Co. of California

	Gasoline			Kero
	Tank wagon	Service station	Incldg tax of	Tank wagon
San Francisco	17.0	20.0	2.0	15.5
Los Angeles	15.5	18.5	2.0	15.5
Fresno	17.5	20.5	2.0	19.5
Reno, Nev.	20.5	23.5	2.0	19.0
Portland, Ore.	18.0	21.0	3.0	16.5
Seattle, Wash.	17.0	20.0	2.0	16.5
Tacoma	17.0	20.0	2.0	16.5
Spokane	21.0	24.0	2.0	20.5
Phoenix, Ariz.	23.0	26.0	3.0	21.5

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero
	Tank wagon	Service station	Incldg tax of	Tank wagon
All Ohio points	20.5	22.5	...	15.0

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero
	Tank wagon	Service station	Incldg tax of	Tank wagon
Omaha	18.0	20.0	2.0	12.5
Crawford	21.0	...	2.0	13.25
McCook	21.75	23.75	2.0	14.0
Norfolk	20.75	22.75	2.0	13.0
North Platte	21.75	23.75	2.0	13.75
Scotts Bluff	21.25	23.25	2.0	13.25

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline			Kero
	Tank wagon	Service station	Incldg tax of	Tank wagon
Chicago Dist—				
†100 gals or more	17.0	20.0	..	12.0

Tank wagon prices on April 19, 1922: g. up 1½c; May 8, g. up 1c; June 27, both up 1c; July 19, g. down 2c, k. down 1c; Oct. 10, g. down 2c; Oct. 21, g. down 1c; Feb. 5, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 14, g. down 6.6c; Oct. 4, k. down 1½c; Nov. 10, g. down 1.4c; Dec. 29, g. up 2c; Jan. 12, 1924, g. up 2c, k. up 1c; Feb. 5, g. up 2c, k. 1c; July 18, g. down 1c, July 30, g. and k. down 1c; Sept. 12, g. down 2c; Jan. 23, 1925, g. up 1c; Jan. 26, g. up 1c; Jan. 31, g. up 1c; Jan. 26, g. up 1c; Jan. 31, g. up 1c; Feb. 12, g. up 2c, k. up 1c; April 19, g. down 1c.

Decatur, Ill.	18.2	20.2	..	12.5
East St. Louis	17.1	19.35	..	11.6
Joliet	18.4	20.4	..	12.7
Peoria	18.2	20.2	..	12.5
Quincy	18.2	20.2	..	12.3
Davenport, Ia.	18.5	20.5	..	12.9
Des Moines	18.5	20.5	..	12.9
Keokuk	18.5	20.5	..	12.9
Sioux City	18.0	20.0	..	12.5
Duluth, Minn.	19.5	21.5	..	13.6
Minneapolis	19.2	21.2	..	13.6
La Crosse, Wis.	21.2	23.2	2.0	13.4
Milwaukee	20.1	22.1	2.0	12.3
Madison	20.3	22.3	2.0	12.5
Detroit, Mich.	20.8	22.8	2.0	13.2
Grand Rapids	20.7	22.7	2.0	13.1
Saginaw	20.9	22.9	2.0	13.3
Evansville, Ind.	21.0	23.0	3.0	12.5
Fort Wayne	21.4	23.4	3.0	12.9
Indianapolis	21.2	23.2	3.0	12.7
South Bend	21.4	23.4	3.0	12.9
Fargo N. D.	20.9	22.9	1.0	15.6
Huron, S. D.	18.0	20.0	3.0	14.1
Sioux Falls	20.5	22.5	3.0	13.6
*Kansas City, Mo.	20.9	22.9	3.0	11.3
*Springfield	20.8	22.8	3.0	12.2
*St. Louis	19.6	21.9	2.5	12.0
*St. Joseph	20.0	22.0	2.5	11.9
Wichita, Kans.	17.8	19.8	..	10.8
Bartlesville, Okla	19.9	21.9	3.0	10.9

*State tax is 2c. Remainder is city tax.

†Tank wagon price on less than 100 gallons, 18.0

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero
	Tank wagon	Service station	Incldg tax of	Tank wagon
Newark, N. J.	17.0	19.0	..	12.5
Atlantic City	17.0	...	..	12.5
Annapolis, Md.	20.0	...	2.0	11.5
Baltimore	19.0	21.0	2.0	11.0
Cumberland	20.0	22.0	2.0	12.0
Washington, D. C.	19.0	21.0	2.0	12.0
Norfolk, Va.	21.0	23.0	3.0	13.0
Petersburg	21.0	...	3.0	13.0
Danville	21.0	...	3.0	13.0
Richmond	21.0	23.0	3.0	13.0
Roanoke	21.0	23.0	3.0	13.0
Keyser, W. Va.	20.0	...	2.0	13.0
Charleston	19.0	21.0	2.0	13.0
Parkersburg	19.0	21.0	2.0	13.0
Wheeling	19.0	21.0	2.0	13.0
Charlotte, N. C.	22.0	24.5	4.0	14.0
Hickory	22.0	...	4.0	14.0
Mt. Aairy	22.0	...	4.0	14.0
Salisbury	22.0	...	4.0	14.0
Charleston, S. C.	23.5	26.0	5.0	14.5
Columbia	23.5	26.0	5.0	14.5

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero
	Tank wagon	Service station	Incldg tax of	Tank wagon
*Pittsburgh, Pa.	19.0	24.0	..	14.0
*Philadelphia	19.0	24.0	..	14.0
*Scranton	19.0	24.0	..	14.0
*Allentown	19.0	24.0	..	14.0
*Altoona	19.0	24.0	..	14.0
*Erie	19.0	24.0	..	14.0
Dover, Del.	21.0	24.0	2.0	14.0
Wilmington	21.0	24.0	2.0	14.0
Springfield, Mass.	20.0	24.0	..	13.0
Worcester, Mass.	20.0	24.0	..	13.0
Boston	20.0	24.0	..	11.0
Providence, R. I.	20.0	24.0	..	13.0
Hartford, Conn.	21.0	25.0	1.0	12.0
New Haven, Conn.	21.0	25.0	1.0	13.0

*Pennsylvania tax of 2 cents is collected by the dealer and paid by him direct to the State.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incldg tax of	Tank wagon
New Orleans	18.5	20.5	2.0	11.0
Alexandria	18.5	20.5	2.0	12.0
Baton Rouge	17.0	19.0	2.0	10.5
Lake Charles	18.5	20.5	2.0	12.0
Shreveport	18.5	20.5	2.0	11.0
Memphis, Tenn.	19.0	21.0	3.0	13.0
Chattanooga	20.5	22.5	3.0	13.5
Knoxville	21.5	23.5	3.0	14.5
Nashville	20.5	22.5	3.0	12.5
Bristol	21.0	23.0	3.0	12.5
Little Rock, Ark.	21.0	23.0	4.0	10.0

TANK WAGON PRICE CHANGES

April 9.—Magnolia Petroleum Co. reduced the tank wagon price of gasoline at San Antonio, Tex., 2 cents and the service station price 3 cents. At El Paso, it reduced gasoline tank wagon and service station prices 1 cent. It advanced tank wagon prices of gasoline at Fort Smith and Little Rock, Ark., 1 cent.

April 18.—Standard Oil Co. of Indiana met the reduction of 1 cent in tank wagon and service station prices at Chicago made by Roxana Petroleum Co. Ohio Oil Co. advances tank wagon and service station prices 2 cents.

April 20.—Standard Oil Co. of Kentucky reduces the tank wagon and service station prices in its territory 1 cent.

CRUDE PRICE CHANGES

April 15.—The Texas Co. posts revised Smackover crude gravity schedule posting three grades as follows: Below 24 gravity, 60 cents; 24 to 25.9 gravity, $1.00, and 26 and above, $1.30. Atlantic Oil Producing Co. reduced Stephens, Ark., crude 15 cents. The same company posted a different gravity for Smackover crude schedule as follows: Below 24 gravity, 40 cents; 24 to 24.9 gravity, $1.10, and 25 to 25.9 gravity, $1.20, leaving the three higher gravities unchanged.

April 16.—Standard Oil Co. of Louisiana reduced the price of Smackover crude below 25 gravity going to storage 30 cents a barrel to 50 cents, leaving crude not to exceed shipping facilities at 80 cents.

April 17.—Joseph Seep Purchasing Agency reduced the price of Gaines, Pa., crude 40 cents a barrel; all other Pennsylvania and Bradford grades 25 cents a barrel, and Somerset crude 15 cents a barrel.

April 18.—Standard Oil Co. of Louisiana posted the following Smackover crude schedule: 27 and above gravity, $1.30; 26 to 26.9, $1.25; 25 to 25.9, $1.20; 24 to 24.9, $1.10; and below 24 gravity, 60 cents on crude for shipment and 40 cents for crude to storage. Gulf Refining Co. followed Standard revision of prices with only one price for Smackover heavy, 40 cents. Standard Oil Co. of Kentucky reduced the prices of Cumberland, Monroe and Barren crudes 15 cents.

ALL GRADES OF GASOLINE IN OKLAHOMA ADVANCE

(Continued from Page 20)

They said the refiners needed the natural gasolines to "pep" up their storage which they applied on the New Jersey purchase.

Natural gasoline storage is light and if the demand is as strong as claimed the manufacturers should have little trouble in getting the higher prices. There was some complaint among marketers and other sellers on Monday that the smaller buyers were refusing to pay the higher prices.

The trend in fuel and gas oils is following out the predictions of those who for two weeks have claimed that the new production from the Smackover Field would gradually force reductions in all grades of refinery fuel oil. The production of the Smackover Field (old and new production) was approximately 240,000 bbls. a day. Several important buyers who generally purchase Mid-Continent fuel oils are making preparations to handle the Smackover product. Certain classes of fuel oil consumers including glass and brick industries cannot use the Smackover product but a majority of the consumers have no objections to it especially if it can be purchased under the prices asked by the Oklahoma, Kansas and other Mid-Continent refiners.

Oklahoma refiners will be slow in lowering their prices because they are in good shape in regard to storage and contracts which take the bulk of their output. However, they were forced to meet Smackover competition whenever they sold on the open market for interstate shipment.

One company which sent a representative to Arkansas to obtain first hand information reported that the Smackover fuel would be available in considerable quantities to small buyers. There are a large number of loading racks owned by small companies built when Smackover was first discovered two years ago. These loading racks are now available for the new flush production.

Gasolines and Naphtha

All grades of gasoline have advanced from a half to a cent in the last week with the greatest advance being made in the 64-66 375 grade. This gasoline was quoted at 13-13¼ cents Tuesday, an advance of 1 cent in the week. The 58-60 437 (U. S. Motor) increased in price three-quarters of a cent during the week to 10½ to 10¾ cents. The 60-62, 400 grade was comparatively firm at 11½ to 12 cents with indications that the 11½-cent offerings would be off the market soon. The 56-58, 450 gasoline and naphtha (50-52, 450) are holding an even pace on the advancing market, being quoted Tuesday at 10 to 10¼ cents, both an increase of three quarters of 1 cent. Although there is little or no demand for the 68-70, 350 gasoline, the price of the product advanced in line with the others and is being quoted at 13¼ to 13½ cents.

Kerosene and Distillates

The demand and movement of kerosene which has been increasing the last few weeks took a downward turn but prices held steady, 41-43 water white kerosene still being quoted at 4 to 4⅛ cents; 42-44 water white kerosene at 4⅛ to 4½ cents and 40-41 prime white at 3⅞ to 4 cents. Continued weakening in distillates had its effect in further price reductions, with prices ranging from 3 to 3⅛ cents for 36-38, and 3⅛ to 3¼ for 38-40 straw.

Natural Gasoline and Blends

Among the outstanding features of the market was the remarkable strengthening of natural gasolines and blends, all grades increasing in price a cent or more during the week. Grade B was practically off the market while A and B grades were scarce. By Tuesday no grade A under 10 cents was available. The market on B was placed at 9 cents while C natural gasoline was bringing 8¼ to 8½ cents. All grades of blends were quoted at 10 to 10¼ cents.

Fuel and Gas Oil

Smackover crude production told its story on fuel oil prices during the week when reductions were made in all grades. The 24-26 fuel oil dropped in price until Tuesday it was being quoted at $1.02½ to $1.05. The 28-30 fuel slumped to $1.07½ to $1.10 while lower gravities went as low as 95 cents. Gas oil (32-36) showed a continued weakening effect on the price and Tuesday was quoted at 2⅞ to 3 cents, a reduction of ⅛ cent from the week previous.

Lubs and Wax

Movement of lubricants continued good during the week but there was a weakening in cylinder stocks. However, there were no price changes in these products. Wax continued firm at 4½ to 4¾ cents with the bulk of the business being done around the higher figure.

CRUDE OIL PRICES

(Continued from Page 171)

*Prices for Warren, Allen, Hancock, Simpson and Ohio Counties by Indian Refining Co.

Mexican Crude

*Tuxpam (f.o.b. Mexican ports)	1.35
†Panuco (f.o.b. Mexican ports)	1.25
Tuxpam (New York)	1.99
Panuco (New York)	1.76

*Plus 33.00c tax. †20.00c tax.

THE LOCATION of dealers who feature Sinclair Oils makes no difference in the closeness of the contact between us—a contact closer than is usual between buyer and seller.

Sinclair dealers are never without Sinclair service and co-operation. Sinclair recognizes and fulfills its obligations to the dealer.

SINCLAIR REFINING COMPANY

NEW YORK
Sinclair Oil Bldg., 45 Nassau St.
Telephone: Rector 9320

CHICAGO
22nd and Rockwell Streets
Telephone: Crawford 2000

Cable Address: "Lucent"

SINCLAIR OILS

INDIANA COMPANY DIRECTORS VISIT PAN AMERICAN MEXICAN PROPERTY

By J. B. Waldo

CHICAGO, April 18.—Today at noon eight directors of the Standard Oil Co., (Indiana) with associates from the Pan American Transport & Trading Co., and others from the local offices, left for a 10-days' trip to Tampico and other recently acquired properties. While the trip will be in the nature of an ispection for some of the party, its main reason is the necessity of a better acquaintance between the new controlling interests and the local management of the properties. Each has something to learn from the other but it is believed that under the new control the Mexican company with its domestic subsidiaries will gain very substantially from the system of management which has brought the Standard Oil Co., (Indiana), in a comparatively short time from a position as a company serving the public of the Middle West as a refiner and distributor to the very front rank of complete petroleum organizations of the world.

The first step towards that better acquaintanceship and to make known to the new associates of the management of the Standard Oil organization the full measure of its purposes and policies was a meeting held in the Racquet Club in New York City. On the part of the new interests which have come into the Pan American Petroleum & Transport Co., there were present Col. R. W. Stewart, chairman of the board, Dr. W. M. Burton, president; E. G. Seubert, vice president and treasurer; John D. Clark, vice president and R. H. McElroy, director of traffic for the Standard Oil Co., (Indiana) with Hunter S. Marston, George Ormsby and Edward F. Hayes, members of Blair & Co., Inc., E. R. Tinker, Jr., president of the Chase Securities Corp., and Frederick H. Wickett, chairman of the board, Pan American Petroleum & Transport Co. Mr. Wickett is also president of the Dixie Oil Co., a producing subsidiary of the Standard Oil Co. (Indiana).

The list of those present from the Eastern organization did not include the name of Herbert G. Wylie, president of the Pan American Co., as his physicians would not permit him to attend. Mr. Wylie had been very active in promoting the first meeting and his enforced absence was deeply regretted. The organization was fully represented by his associates, those present including Paul Harwood, Harold Walker, J. J. Cotter and Frederick Ewing, members of the board of directors and active heads of important operating departments, R. M. Sands, secretary of the company, A. N. Penn, recently promoted from assistant treasurer to treasurer, and J. S. Woods, vice president and traffic manager for the organization. Frederick Kellogg, president of the Pan American Co., was also present with several of his assistants, including two of the Mexican counsel of the company.

Address by Colonel Stewart

The principal address of the evening was made by Col. R. W. Stewart, who assured the members of the Pan American organization present and through them the entire staff from the highest to the lowest, that there was no intention on the part of the interests who had come into control of this vast property to make any change in the present operating personnel, that there would be no limitation of opportunity for every faithful employe and that the door was open to all such for recognition and advancement to the highest position with the organization depending solely on merit and service. He asserted that the change in control of the company involved no change in the business policy which would be continued under the new management as aggressively as in the past. He was followed by other speakers both from the new and old management, the latter giving every assurance of hearty cooperation and loyal service as in the past.

The next step is to be the trip through the Mexican refinery and the producing properties of the Pan American companies at Tampico, returning by way of New Orleans. The party from Chicago consists of Col. R. W. Stewart, chairman; Dr. W. M. Burton, preisdent; Beaumont Parks, vice president; Allan Jackson, vice president; E. G. Seubert, vice president and secretary-treasurer; Edward J. Bullock, director of purchases; Robert H. McElroy, director of traffic; John D. Clark, vice president; Joe Novotti, secretary to the chairman; Fred H. Wickett, chairman Pan American Petroleum & Transport Co., and from New York, Harold Walker, vice president of the Pan American Co., and J. L. McKeever, assistant to the president of the same company. Leaving today at 11:45 a. m. by way of St. Louis the party will arrive in its special car at Tampico early on the morning of April 21, to remain there four days. During this time they will make a complete inspection of the refinery, offices, producing properties, transportation facilities, loading lines and the like, familiarizing themselves with all details. Every occasion will be improved to meet and form a better acquaintance with the local management and staff. On the evening of April 23, there will be a dinner at which, in addition to the visitors from the North, there will be gathered all the officials, department heads and leading employes and the opportunity will be taken to give them the same assurances that were given at the gathering in New York City.

To Visit Destrehan

Leaving Tampico in the late afternoon of April 24, the party will travel to New Orleans, on the morning of April 27 going at once to the refinery at Destrehan where there will be a general meeting to greet the officials of the Standard Oil Co. (Indiana), and their eastern associates by the officials and department heads of the local organization. One day will be spent at Destrehan, the party returning to New Orleans for the return trip, planning to arrive at Chicago at noon on April 28.

There is much going on to adjust the relations between the organizations in a minor way. For example the local offices of Standard Oil Co. (Indiana) have been visited by Frederick Ewing, manager of sales, and Fisher Jones, at the head of the asphalt department of the Pan American Co. These have been in consultation with the local management for several days and other visitors are expected, all looking to the fullest cooperation between the existing organizations and insuring a complete understanding of the purposes and methods of the new management by those in charge of the actual operation of the new acquisition in the East, Mexico, and in Europe.

PHOTOGRAPHS FROM RIVKIN

Photographs of the following men, appearing in the special section in this issue, were provided through the courtesy of J. L. Rivkin, photographer of Tulsa, Okla.: A. V. Bourque, R. R. Dean, A. J. Schlosser, Dean E. Foster, R. P. Humes, O. H. Schoenwald, John M. Hall, W. K. Warren, Emby Kaye, L. C. Ritts, H. H. Young and B. E. Blankenship.

DEATH OF S. B. FORST

SAN ANTONIO, Tex., April 18.—Forst, chief clerk of the Parkersburg Rig & Reel Co., at Casper, died suddenly Wednesday night. He came here three years ago from New York. He is survived by his mother in the East.

TO ENTERTAIN OIL MEN

The scouts, geologists, land men and engineers of the Okmulgee, Okla., district will be host to about 400 of their friends at an informal dance to be given at Douglas Park, Okmulgee, on Friday evening, April 24.

ABSORPTION OIL AS A FACTOR IN PLANT OPERATION EFFICIENCY

By A. F. Maxson
*Plant Engineer, Sun Co.**

It is generally understood that whenever there is a wide variation of opinion on any subject, little is known about that subject. This seems to be the case with absorption oil. Absorption oil is bought sometimes on color, sometimes on viscosity, sometimes on boiling range, etc. All these characteristics indicate something. Some are important; thers are not.

That theory enters into the manufacture and use of absorption oil cannot be doubted. Two oils having radically different properties were investigated. The oil which is termed the long boiling range had a Baume gravity of 36 degrees, an initial of 500 degrees Fahrenheit and an endpoint of 700 degrees Fahrenheit. The oil which is termed the short boiling range had a gravity of 40.3 Baume, an initial of 442 degrees Fahrenheit and an endpoint of 460 degrees Fahrenheit. Solutions of 1, 2, 5, 10 and 15 per cent of absorption gasoline—350 endpoint, 85 degrees Fahrenheit initial, 76 per cent gravity were made up in both oils and their vapor pressure measured at 70 degrees Fahrenheit.

The advantage of the short boiling range was readily seen. At 1 per cent, the long range had a vapor pressure of 7.5 millimeters of mercury; the short range had 5. at 2 per cent; the long range had 24 millimeters of mercury, the short range had but 16 millimeters. At 5 per cent, the long range had 47 millimeters, the short range 38. At 10 per cent, the long range had 81 millimeters, the short range 75 millimeters. At 15 per cent, there was but 5 millimeters difference—110 against 115, due to the fact that it is approaching the vapor pressure of gasoline itself.

The maximum difference was about 50 per cent and this difference was at 1 per cent saturation. At 4 per cent, or about the saturation encountered in plant practice, the difference was 20 per cent. This means that the oil of short boiling range would absorb 20 per cent more gasoline per unit volume than the long range—or that 80 per cent of this short range oil would do the same work as 100 per cent of the long range. This is in accordance with theory. According to Raoult's law, the short boiling range or lower molecular weight of oil should absorb more gasoline than the long range, or higher molecular weight of oil. No molecular weights were determined.

Enough of the sample of the short range was not available for a determination of the viscosity. Its much lower viscosity should result in a slightly better heat transfer, especially at the lower temperatures in the oil cooling coils.

Work by Williams & Daniels has shown that for non-associating liquids, of which the paraffin hydro-carbons are one, the specific heat times the specific gravity is a constant; 0.35, so there is nothing to be gained or lost in this respect by the use of a short range oil.

Viscosity Important

Viscosity is a very important consideration in the absorber. The short range oil has an advantage in this respect. Some operators have found it profitable to dump their absorption oil, when due to the addition of crude oil, it thickens perceptibly.

Tests were made to determine just where the initial of the oil should be. Two mixtures of 10 per cent gasoline in oils having different initials were made up. One oil had an initial of 650 degrees Fahrenheit, the other had an initial of 500 degrees Fahrenheit. Each was distilled in a 100 cubic centimeter flask with one thermometer in the oil and one in the vapor. Readings were taken with every 5-degree rise in the liquid temperature, and the amount of condensate over was noted. The resulting data showed that for complete extraction of gasoline by a fire still, it is necessary to heat the oil until it starts to distill over. A low initial oil is to be preferred in a fire still.

In "Elements of Fractional Distillation" by Robinson, under "Wash Oil," may be found this statement: "The grade of petroleum distillate used for scrubbing may be considered to have a boiling point at atmospheric pressure of about 300 degrees centigrade. To thoroughly remove all the benzene from the wash oil by boiling at 760 millimeters the temperature must be raised to 300 degress centigrade.

It would seem from these determinations that an oil having about a 450 initial boiling point and a short boiling range would give better results than oil in use at present, especially on plants using straight fire distillation.

On plants employing steam stills, complete extraction can be obtained with the use of a higher initial, although a 450 degree Fahrenheit initial would doubtless prove advantageous. It will readily be understood that an oil that shows greater affinity for gasoline in the absorber will, in a countercurrent steam still, where the process of extraction is just opposite that of absorption, tend to hold that gasoline tighter. In this respect the short range, or low molecular weight oil has a slight disadvantage.

In a plant where the knock-out box or fractionator is either loaded now or improperly designed, trouble would probably be found in controlling endpoint, with the use of a lower initial oil. It would doubtless pay, both from the standpoint of better extraction efficiency, and also from the standpoint of heat used, if a lower initial oil were used on fire stills, even with the cost of constructing a larger or more efficient fractionator.

Change for Better

There are several factors in plant operation which can offset any gain by use of a better absorption oil. For instance, a 10-degree rise in the temperature of the absorber will counteract the gain in absorption that might be obtained by use of the short range oil. Poor stripping of the oil, low oil circulation, low velocity in the absorber and other factors which enter into the making of inefficient plants.

If there is any advantage in using a better absorbent, whether it be 5 per cent or only 1 per cent and other factors remain the same, it is worth consideration.

Just as a gradual change for the better is going on in any large industry, so the manufacturers of absorbent oils are gradually changing their oils, which makes them better for the purposes for which they are intended. A change which gives a lower initial and a shorter boiling range, with no great change in the vapor pressure of oils in use today, should prove advantageous to the gasoline manufacturer.

*Before Association of Natural Gasoline Manufacturers, Tulsa.

A. W. THOMPSON JOINS INTERNATIONAL SUPPLY

A. W. Thompson has joined the International Supply Co. as assistant to the president and among his duties will be a general management of stores and salesmen. Mr. Thompson was for years with the Continental Supply Co. in the executive department, and has been in the supply business ever since he left college.

He has a very wide acquaintance in many oil fields and is one of the most popular as well as efficient men in the supply trade.

Mr. Thompson is a son of W. P. Thompson, of Bradford, Pa., one of the old guard of producers who made history in America's first oil regions from Oil Creek up and down the Allegheny River.

He will make his headquarters in Tulsa.

Eastern Refiners Stress the Need of Greater Research

By C. O. Willson

CAMBRIDGE SPRINGS, Pa., April 22.—The petroleum industry should devote more time to research work and should employ more young men of technical training, according to Dr. H. J. Masson, of New York University, who spoke this morning at the opening session of two days' spring meeting of the National Petroleum Association.

Dr. Masson, speaking on the subject "Knowledge and Experience in Oil Refining," said that although the oil industry had made some progress in scientific investigation having to do with the manufacture and utilization of refined products, it had not accomplished as much as many other industries of less importance. He recommended that the refiners take young college men into their organizations before they graduated and employ them during their summer vacation. Then, he pointed out, the combination of a college work and practical plant training would give them a class of men who could cope with their many technical problems. Dr. Masson also stressed the benefits which would accrue to all through cooperation between the companies in discussing and solving their mutual problems. He declared in this connection that in his own investigations he had found that process or method which is closely guarded by one concern is generally known to all.

Approximately 60 men connected with eastern refineries were present this morning when O. P. Keeney, president of the association, opened the meeting. It is believed that the total attendance for the two days will probably establish a record for the association. President Keeney said that great progress had been made in the association program adopted last year of economy and greater efficiency. He and P. S. Tarbox, chairman of the technical committee, both stressed the benefits which have accrued to the eastern refiners through the group technical meetings which have been held recently.

The remainder of the morning session was taken up in a discussion of technical subjects.

BUCHANAN REVIEWS ASSOCIATION RECORD

(Continued from Page 23)

say nothing of the normal increase in general gasoline consumption.

The improvement in quality of natural gasoline has also had much to do with enlarging the market. It can truthfully be said that the natural gasoline industry has made wonderful progress in adopting improved methods and raising the standards of its product. Many refiners who now use large quantities could never have been induced even to try your product of only a few years ago.

Some day the crude oil which has been in tankage months and years will be run to stills, and whenever that happens natural gasoline will perform a real service in replacing the light fractions which have evaporated from the crude during the storage period.

Increase In Production

The increase in production of natural gasoline has been astonishing. In 1915 the production was only equal to one-fourth of a gallon per barrel of crude oil produced. In 1920 it was .9 gallons per barrel of crude, while in 1924 it is estimated at 1.35 gallons per barrel of crude oil produced. This increase in the ratio can not go on indefinitely. We may not yet have reached the limit, but I believe we are close to it. Certainly the increase will never again compare with the increase in the past five years. If this prophecy be true and the expected increase in gasoline consmption is realized along with more perfect fractionation in refinery operation, the future of the natural gasoline industry should be brighter than the past.

The service rendered by an industry will determine how long it shall endure and prosper. In so far as our national resources are concerned, this will be an era of conservation and the product of your manufacture, the very cream of petroleum, will continue to command a stronger position with relation to other petroleum products, so long as petroleum products turn the wheels of the world.

"SWEETENING" OF NATURAL GASOLINE

(Continued from Page 23)

scales for weighing the liquid chlorine. The chlorinating tank is set sufficiently high to allow the hypochlorite solution to flow by gravity into the blow-in tank. The blow-in tank is provided with a valved funnel for receiving the solution, an air pressure connection, a pressure gauge and a vent. This tank is connected, at the bottom, to a point in the side of the treating tower near the bottom.

The treating apparatus consists of a treating tower and settling tank. The treating tower is filled with steel turnings, or tile, and is equipped with a gasoline inlet connection near the bottom; a water line connection, which must be under sufficient pressure to supply water to the treater when in operation; a draw-off, or drain, connection, also the connection to the blow-in tank, which has been mentioned. The gasoline outlet at the top of this tower is connected to the horizontal settling tank in one end near the bottom. The outlet of this tank through which the gasoline passes into the line conducting it to storage is at the top of the opposite end. This tank has a drain valve on the bottom for drawing off any hypochlorite solution that may be carried over from the treating tower.

Method of Preparation

The method of preparing the hypochlorite solution is as follows:

A caustic soda stock solution is first prepared by placing a drum of commercial sodium hydroxide in the hopper. The end of this drum is then punched at the top and bottom and steam jet inserted in the hole at the top. The steam is then turned on and the melted caustic, from the hole in the bottom of the drum, is allowed to flow through the line into the tank below. About one-fourth of the water required for the mix is placed in the tank before adding the caustic, thus preventing resolidification. After the caustic is "steamed out," the solution is diluted to 16 degrees Baume and, after cooling, is ready for use. A 16-degree Baume solution has been used because it contains 1 pound of caustic per gallon, thus simplifying calculations.

The size of the hypochlorite batch should depend on the amount used, three or four days' supply being at present considered sufficient. In the case of the larger plants, it is customary to make up 150 pounds of chlorine per batch while, at the smaller plants, 50 pounds and 25 pounds are more satisfactory. This is on account of the deterioration of the hypochlorite on standing.

In the preparation of a 150-pound batch, the procedure is to draw into the chlorinating tank, having a capacity of 300 gallons, approximately 240 gallons of caustic solution. The chlorine is then fed into this solution, at the bottom as shown at the rate of 2 pounds per minute. With these quantities and rates, a temperature rise of 30 to 35 Fahrenheit degrees has been observed. H. F. Zoller* states that it is not necessary to cool alkali solutions below 40 degrees Centigrade (104 degrees Fahrenheit), while chlorinating or to store the hypochlorite in a cool place. However, it has been the practice in the described operation to chill the solution to about 60 degrees Fahrenheit before chlorinating, thus avoiding final temperatures in excess of 95 degrees Fahrenheit. This method has been very efficient, analysis indicating over 99 per cent of the chlorine combined as hypochlorite.

This solution has shown a marked deterioration on standing in spite of the fact that practically 50 per cent excess of alkali is used. Experimental work on this feature has indicated that this is due to contact with iron and iron oxide on the walls of the tank. Glass containers and protective linings of inert materials are at present being tried as preventives; however, sufficient information has not yet been obtained to warrant a statement other than their use as apparently justified.

In the operation of the treating unit the treating unit is filled almost to the working level with water. A charge, enough for about eight hours' operation, is drawn from the chlorinating tank into the blow-in tank, then transferred to the treater by means of air pressure. The gasoline is turned into the bottom of the treating tower, as in the previously described systems, passes up through the baffled portion in contact with the treating solution and out into the settling tank and on to storage.

Frequent tests of the product leaving the treater are necessary until the consumption of hypochlorite solution per gallons of gasoline is determined after which tests are necessary only as the exhaustion of the charge is approached. This solution does not cease to sweeten until the hypochlorite is almost entirely exhausted, the breaking point being at approximately 1 pound of available chlorine per 1,000 gallons.

When the treating solution is exhausted, without stopping the flow of gasoline, enough spent solution is withdrawn from the tower to admit a new charge of stock solution without materially affecting the level of the treating solution, which is then transferred from the chlorinating tank into the treating tower by means of the blow-in tank as before described.

The cost of operation of this process has not yet been reduced to a point equal to the direct chlorination method, the chemical cost at present being about 35 cents per 1,000 gallons. Even this does not offer a very attractive field for investigation as even a 50 per cent decrease in this cost would reduce the expense of a large plant only a few dollars per day, and, in the case of the smaller plants, of say, less than 5,000 gallons daily production, the saving would be measured in cents.

In conclusion, the writer wishes to emphasize that experience has proven that the sodium hypochlorite method as applied to the treatment of natural gasoline has shown a marked superiority from the viewpoints of economy of installation, and ease of operation. Moreover, it produces a uniformly "sweet" and non-corrosive product. It is for these reasons that it has been adopted by the Phillips Petroleum Co.

*H. F. Zoller, Ind. & Eng. Chem., Vol 15, No. 9, August, 1923, p. 846.

SKELLY WILL HEAD OIL EXPOSITION

W. G. Skelly, president of the Skelly Oil Co., was elected president of the International Petroleum Exposition by the board of directors at a meeting this week and he has accepted the honor and will take an active part in the conduct of this year's show which will be held October 1 to 10. The other officers and directors of the Exposition are Frank Hinderliter, first vice president; Alf G. Heggem, second vice president; J. J. McGraw, treasurer, P. D. Hayes, assistant treasurer; William Holden, secretary; A. F. Bourne, W. M. Bovaird, Fred Insull, A. W. Leonard, O. C. Staples and D. D. Wertzberger and the officers, directors.

The sale of space to old exhibitors opened last week with a rush. On May 1 the space will be open to new exhibitors. Forty firms not represented at either of the first two annual exhibitions have asked for reservations this year.

GASOLINE MAKERS ARE OPTIMISTIC OF FUTURE

(Continued from Page 22)

Wednesday afternoon when lively discussions followed papers read by A. F. Maxson, plant engineer of the Sun Co., Tulsa., and W. G. Hiatt, research engineer of Phillips Petroleum Co., Bartlesville. Mr. Maxson read a constructive paper on "Absorption Oil," a topic which nearly every member of the association several months ago asked to be discussed. The discussion following this paper was led by R. R. Dean, assistant superintendent of the gasoline department of Waite Phillips Co. R. M. Coyle, assistant superintendent of Chestnut & Smith at Ranger, Tex., led the discussion after Mr. Hiatt's paper on "Treating." Both Mr. Maxson's and Mr. Hiatt's paper are printed elsewhere in this issue.

Although the convention is intended as a school of instruction for natural gasoline making problems, and not a social event, the banquet Wednesday night proved an attraction and was fully attended. The principal speakers were J. A. Veasey, chief counsel of the Carter Oil Co., Tulsa, and Horace Hagan of Tulsa. Mr. Veasey talked on "The Power of Government and the Sanctity of Property." Mr. Hagan's talk was in a lighter vein, which could be judged by his topic, "In Search of a Subject."

Directors of the association held their annual luncheon at the Mayo Hotel Wednesday noon. At this luncheon general plans for the future operation of the association were made while problems of electing officers for the ensuing year were ironed out. It is known that Mr. Buchanan has expressed a desire not be be reelected president. He already has served two years but it has been considered probable that he would be chosen again. The directors discussed this situation although they will not make a full report until Thursday.

Twelve places on the board of directors are to be filled by election at this convention. Of these, nine are because of expiring terms, while the remaining three are becnuse of changes in membership.

David T. Day Dies At Washington, D. C.; Petroleum Authority

By Charles E. Kern

WASHINGTON, D. C., April 16.—Dr. David Talbot Day, internationally known geologist and former chief of the mining and mineral resources division of the United States Geological Survey, died of heart disease at the home of Dr. I. S. Stone, 1618 Rhode Island Avenue, this city, today. Dr. Day, who was 66 years old, had held numerous positions of importance with the Geological Survey and was a recognized authority on petroleum

David T. Day

and mining. Dr. Day was a resident of Washington, but recently he had lived in southern California, still maintaining an office in this city. Since leaving the Government service in 1920, after 37 years' service, he had been one of the leading figures in the petroleum industry, and had, during recent years, devoted a great part of his time to the recovery of oil from shale.

In 1922 Dr. Day edited the Handbook of Petroleum Industry, which has been generally accepted as the leading subject on petroleum mining, refining and other processes in the production of various products from crude oil.

MODERN CHANGES IN PENNSYLVANIA REFINING

(Continued from Page 167)

degrees Fahrenheit superheat, delivered to Kerr turbines, direct connected to Allis-Chambers generators. The turbines are run at 25 pounds back pressure, the exhaust being delivered to Foster superheaters, heated by the waste flue gases from continuous stills, steam being delivered to the stills at 460 degrees Fahrenheit and 25 pounds pressure.

The power is generated at 220 volts from plant No. 1 and stepped up to 2,200 volts and delivered 2 miles to plant No. 2. This part of the plant is extremely well balanced, as it is on very rare occasions that any make-up steam is required from the boilers. The electric generating plant alone shows a saving of $4,000 per month over purchased power.

Continuous Stills

Pennsylvania crude is distilled in a continuous battery of stills, equipped with towers for fractionating the distillates. Each still is equipped with a "Dutch oven" furnace and especial attention is given to draft requirements. The crude is preheated with exhaust steam, and with vapor heat exchangers, and these methods, together with others under development, show how important heat recovery apparatus is becoming to the industry.

Every effort has been made to produce operating economies in the other refinery operations and the net result has been a refinery which has received very favorable comment from inspection from all parts of the country.

NORTH CENTRAL TEXAS

(Continued from Page 165)

University, 705 feet; No. 3 Group 1 University, 3,055 feet.

Wildcats Drilling

Roberts County—Ergle and others' No. 1 Ledrick is underreaming.

Hutchinson County—Panhandle Refining Co.'s No. 1 Perkins, drilling in gyp at 1,200 feet; Amarillo Oil & Gas Co.'s No. 2-B Bivins, drilling at 290 feet; Prairie Oil & Gas Co.'s No. 1 Shaw, 3,335 feet;

Potter County—Amarillo Oil Co.'s No. 1 Warrich, is fighting gas and salt water at 3,035 feet; No. 1 Bush, fishing at 3,495 feet.

Carson County—American Refining Co.'s No. 1-C Burnett, drilling at 1,485 feet; Crosbie Oil Co.'s No. 2 Burnett, 1,950 feet; Culbertson Bros.' No. 1 Armstrong will shoot at 3,160 feet; Gates Oil Co.'s No. 1 Burnett, cleaning out to pump; Magnolia Petroleum Co.'s No. 1 Burnett, drilling at 120 feet; Silk and others' No. 4 Burnett, setting casing at 200 feet; The Texas Co.'s No. 5 Burnett, drilling at 2,885 feet; No. 2-A M. C. Burnett, spraying oil at 2,960 feet; No. 3 M. C. Burnett, drilling in red shale at 915 feet.

Gray County—Anderson and others' No. 1 Beavers, showing gas at 2,585 feet; Clark and others' No. 1 Combs and Worley, drilling at 2,807 feet; Wilcox Oil & Gas Co.'s No. 1 Combs and Worley, 2,050 feet.

Wheeler County — Whittington and others' No. 3 Williams & Laycock, setting casing at 2,154 feet; No. 4 Williams, drilling at 2,030 feet; Texhoma Oil & Refining Co.'s No. 1-A Jackson, spudding; Vaughan and others' No. 1 Krey, drilling in gyp at 1,075 feet.

Baylor County—Continental Oil Co.'s No. 1 Stevens, drilling at 1,620 feet; Duke and others' No. 1 Dippery, 1,615 feet; Grebin and others' No. 1 Anderson, 980 feet; McCaldin and others' No. 1 Martin, 1,540 feet; Strong and others' No. 1 Young, 1,205 feet.

Clay County—Atlantic City Production Co.'s No. 1 Scaling, fishing at 3,112 feet; Gwynn and others' No. 1 Saner, underreaming; Lone Star Gas Co.'s No. 2 Magnolia Petroleum Co., drilling at 325 feet; Bennett and others' No. 1 Holloway, 1,505 feet; Mitcham and others' No. 1 Sneed, 690 feet; O'Neil and others' No. 1 Alcorn, underreaming.

Montague County—Daniels and others' No. 1 Salmon, drilling at 325 feet; Hunphreys-Boyd No. 2 Jones, 200 feet; Texhoma Oil & Refining Co.'s No. 4 Howard, 1,053 feet.

Grayson County—Whitesboro Oil & Development Co.'s No. 1 Anderson, drilling at 1,320 feet; The Texas Co.'s No. 1 Cannon, 1,783 feet.

Denton County—Gainsville Synd.'s No. 1 Fortenberry, fishing at 1,380 feet.

Kent County—Greenwood and others' No. 1 Kuteman, drilling at 380 feet.

Shackelford County—Hope Petroleum Co.'s No. 3 Jetter, drilling at 615 feet; No. 10 Jetter, 600 feet; No. 1 Moberly, 320 feet; No. 1 Reynolds, spudding; Hyde and others' No. 1 Moberly, 1,965 feet; Knight and others' No. 1 Moberly, 600 feet; Landreth Production Co.'s No. 1 Kendrick, fishing at 814 feet; No. 1 Moberly, drilling at 500 feet; McKamra and others' No. 1 Clausell, 515 feet; Phillips Petroleum Co.'s No. 1 Compton, 1,195 feet; No. 2 Parrish, 1,500 feet; No. 1 Poindexter, underreaming.

Palo Pinto County—Singleton and others' No. 1 Smith, drilling at 1,950 feet; Burton and others' No. 4 Strawn Coal Co., 2,080 feet; Dalton and others' No. 1 Perkins, 800 feet; Hart and others' No. 1 Cardwell, 1,400 feet; Little Caddo Synd.'s No. 2 Massie, 1,500 feet; Pender Production Co.'s No. 1 Rasmussen, 460 feet.

Callahan County — Byron Union Oil Co.'s No. 1 Hennessey, drilling at 4,600 feet; Prewitt and others' No. 2 Windham, spudding; Seaboard Oil & Gas Co.'s No. 3-A Isenhower, fishing at 1,035 feet.

Mitchell County—Eastland Oil Co.'s No. 1 Clark, drilling at 2,500 feet; No. 3 Keynard, 2,560 feet; Sloan and others' No. 1 Scott, 810 feet; No. 6 Smart, 900 feet; No. 7 Smart, 800 feet; California Co.'s No. 1 Elder Lease 1, 2,550 feet; No. 3 Elder Lease 2, 100 feet; Thompson and others' No. 1 Adams, 2,275 feet; West Texas Petroleum Co.'s No. 4, Miller, 1,250 feet.

Sterling County — Co-Operative Lease & Development Co.'s No. 1 Douthit, cleaning out at 2,000 feet; Chicago Texas Oil & Gas Co.'s No. 1 Durham, cleaning out at 1,820 feet; Pettit and others' No. 1 Reynolds, drilling at 250 feet.

Coke County—Weidler Oil Co.'s No. 1 Mims, drilling at 2,420 feet.

Coleman County—Canyon Oil & Gas Co.'s No. 1 Morris, spudding.

Irion County—Denny and others' No. Spring Creek, drilling at 742 feet.

Upton County—Reagan and others' No. 1 University, drilling at 395 feet; Campbell and others' No. 1 University, 365 feet.

Pecos County—Plymouth Oil Co.'s No. 1 Perry, drilling at 2,675 feet.

Crockett County—World Oil Co.'s No. 1 Powell, drilling at 2,475 feet.

Brewster County—Green Valley Oil Co.'s No. 2 Wilson, drilling at 1,842 feet.

BIG LAKE FIELD IS "WILDCATTER'S DREAM"

(Continued from Page 24)

southwest division of the Transcontinental Oil Co., tested a sample of the 2,400-foot gas sand from well No. 21, and it was heavily saturated with oil. It is fine in texture and dark brown in color. The oil in it tests only 36 degrees gravity however, while at least three-fourths of the crude in the deeper sands tests better than 39 degrees and the rest of it runs close to that figure.

Quantity of Recoverable Oil

The previously mentioned estimate of the amount of recoverable oil in the field includes only the 3,000-foot or Texon pay. It was made by the production men and geologists of one of the producing companies in the field and is based on a recovery of 60 per cent, a saturation of 10 per cent, an average of 20 feet of pay sand, and a proven territory of about 5,000 acres. This figures out roughly 65,000,000 bbls. That the estimate is conservative is shown by the fact that the recovery will probably exceed 60 per cent, the saturation is probably greater than 10 per cent, and the pay formation is undoubtedly considerably thicker than 20 feet. In the Big Lake's No. 14, 1½ miles southwest of No. 18, as previously stated, 69 feet of pay was drilled. Number 18 is 30 feet in it without touching bottom; No. 5 is 25 feet in, and No. 11 is 26 feet in. These are the only wells that have really been drilled into the oolitic dolomite, or prolific pay. Number 12 of the Big Lake's, for instance, is only 10 feet in, having found the sands on top of the oolites saturated. When more oil is needed, it is believed that deepening some of the present producers will double their production or more.

Information on wells belonging to the Texon Oil & Land Co. is difficult, if not almost impossible, to obtain. At present this concern has six producers in the field. Number 1 made 1,800 bbls. in sand topped at 3,022 feet and drilled in 18 feet. Number 3 is the Texon's best well having started out at 4,000 bbls. on December 2, 1924, and still maintaining 3,500 bbls. daily every day. Number 5 on the Texon property is also a good producer. Number 4 was low structurally, being about on a level with Big Lake's No. 4, and made 20 bbls.

The structure as revealed by wells already in, show about 500 feet of closure. The dip in all directions is just about five times as great in the pay formation as in the salt which is used as a marker, the top of which runs about 1,450 feet to 1,650 feet.

The Texon pay contains a little moist gas with the oil, about 250,000 to 500,000 feet in most of the wells, and the Big Lake Oil Co. has a natural gasoline plant in the field, capable of handling about 4,000,000 feet daily.

Freight Rate Difficulties

The fortunate owners of this field are having other difficulties in addition to getting their crude out to market. The Big Lake Oil Co. is controlled by the same interests as the Transcontinental Oil Co. and the latter concern has one of the most up-to-date complete refineries in the Mid-Continent located at Fort Worth, with a daily capacity of 5,000 bbls. However, the transportation rate from San Angelo to Fort Worth is so much greater than the export rate from San Angelo to Houston that the refinery cannot afford to ship its own oil from the field to its plant. The rate is 25 cents per 100, plus a differential of $10 per car, making the rate per barrel about 85 cents while exporters can ship the same crude from San Angelo to Houston, a greater distance, for 17 cents per 100 plus the same differential. The result has been that most of the crude shipped out of the field in tank cars has gone to the Rio Grande Refining Co., at El Paso, Tex.

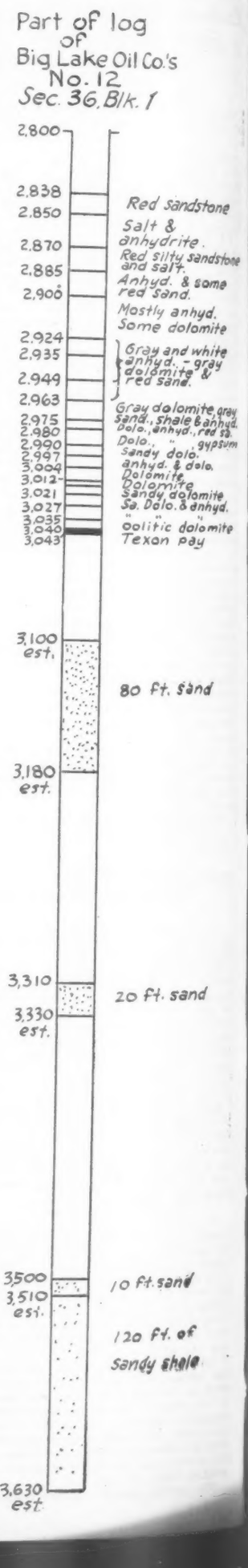
On rush orders, the Orient Railroad Friday began moving 200 tank cars to Texon, where immediately upon their arrival the Big Lake Oil Co. will begin loading for shipment, beginning April 23, of at least 10,000 bbls. of oil daily to Houston.

The field is well fixed for tankage, the Big Lake Oil Co. having twelve 55's, the Texon Oil & Land Co. six 55's completed and six more projected, and the Reagan County Purchasing Co. sixteen 80's.

Various stories have been circulated about the location of the discovery well which was brought in the latter part of May, 1922. Truth has long been recognized to be stranger than fiction, so the writer will pass along the story as related by the man who made the original location, Dr. Hugh Tucker. That the drillers never reached that location is regarded as one of the many freaks of fortune in the oil game.

Discovery Well an Accident

The drilling equipment, it seems, was unloaded at the railroad switch known as Best, which undoubtedly turned out to be the best place to unload it. It was then loaded on a wagon which broke down a short way out of Best, but was repaired and the outfit moved on. When it broke down again, however, the driller decided that he could never reach the location in time to spud in and save the permit, so he unloaded the machine and spudded away. For the Big Lake inter-



sts today, he picked exactly the right ot.

The original well was drilled by the Texon Oil & Land Co. and was later taken over by the Big Lake Oil Co. along with 16 sections of land, only a part of which is shown on the accompanying map. The Texon concern retained a quarter interest in the Big Lake holdings.

A peculiarity that will be noticed on the map is the location of most wells in the center of a quarter section or the center of a 40-acre tract. The latest locations, however, have been made 250 feet from the line.

Levi Smith, president of the Big Lake Oil Co., deserves great credit for the results obtained in the Big Lake Field. Mr. Smith's faith in the field never faltered during the early days when many operators throughout Texas seemed to try to discredit the area as a possible producing section. He "stayed with it" and has had the satisfaction of seeing his beliefs vindicated.

OKLAHOMA

(Continued from Page 36)

ground for No. 16, SW cor. NE, Section 25-27-5.

Denton-Ossenback and others are rigging up No. 1, NE cor. NW, Section 11-26-4.

Burbank

The Phillips Petroleum Co. has completed seven wells on its lease in the SW Section 12-27-5; No. 1, SW cor. SW, Section 12-27-5 topped sand at 2,978 feet, gas at 2,982 fet, oil at 2,991 feet, total depth, 3,037 feet, 50 bbls. natural, shot with 140 quarts, 150 bbls.; No. 1, NW cor. SE SW, Section 12-27-5, sand at 3,008-54 feet, made 75 bbls. natural. It was shot from 3,002-54 feet with 130 quarts and then made 250 bbls. Same company's No. 8 CEL NE SE SW, Section 12-27-5, topped sand at 2,978 feet, oil and gas at 2,982 feet, total depth, 3,034 feet, 200 bbls. natural. It was shot from 2,983-3,043 feet with 150 quarts, made 1,100 bbls. Same company's No. 10, SE cor. NW SW, Section 12-27-5, had sand at 2,971-3,040 feet, first oil at 2,985 feet, 100 bbls. natural. It was shot at 2,980-3,040 feet with 150 quarts, made 625 bbls. Same company's No. 11, SW cor. NE SW, Section 12-27-5, had sand at 2,978-3,038 feet, total depth at 3,041 feet, 150 bbls. natural. It was shot with 120 quarts from 2,990-3,038 feet, and made 275 bbls. Same company's No. 14, CNL, NE NW SW, Section 12-27-5, topped sand at 2,960 feet, 3,000,000 feet of gas at 2,968 feet, first oil at 2,982 feet, total depth, 3,032 feet, 200 bbls. natural. Shot from 2,976-3,024 feet with 120 quarts, made 600 bbls. No. 16, same company, NE cor. SW, Section 12-27-5, had sand at 3,000-60 feet, first oil and gas at 3,009 feet, 300 bbls. natural. Shot at 3,004-60 feet with 140 quarts, made 1,000 bbls.

The Prairie Oil & Gas Co. is drilling six wells on its lease in the SE, Section 12-27-5. No. 1, SW cor. SE, Section 12-27-5, is drilling at 648 feet. No. 2, CWL NW SW SE, Section 12-27-5, is drilling at 385 feet. No. 3 CWL SW NW SE, Section 12-27-5 is drilling at 330 feet. No. 4, NW cor. SE, Section 12-27-5, is drilling at 396 feet. No. 12, CSL SE SE SW, Section 12-27-5, is drilling at 135 feet. No. 12, NE cor. SW SE, Section 12-27-5 is spudded.

Phillips Petroleum Co. has a rig on the ground for No. 4, SE cor. NW NE, Section 16-27-5.

Other Osage County Completions

Olean Petroleum Co.'s No. 4, CSL SE NW SE, Section 19-25-9, had Burgess sand at 2,269-99 feet, first oil at 2,277 feet, was shot at 2,286-99 feet with 60 quarts and made 90 bbls. the first 14 hours.

Kay County

The Prairie Oil & Gas Co. is spudding No. 1 Boyce, NW cor. NW, Section 17-27-1w.

Tulsa County

Dean and others have completed No. 2 Freeman, SW cor. NE, Section 24-19-14 for a 3,000,000-foot gas well from sand at 1,160-67 feet.

Center Oil Co. has completed No. 3 Hakey, CNL SW NW, Section 33-18-14. The well was shot with 110 quarts in sand at 1,500-40 feet and produced 10 bbls.

S. L. Johnson and others are rigging up a machine for No. 1 Grayson, SE cor. SW SE, Section 4-19-14.

The Red Bank Oil Co. has spudded No. 1 Bible, CWL NE SW, Section 12-18-13.

The Sac and Fox Oil Co.'s No. 4, NE cor. NW SW, Section 33-18-14, is dry and abandoned at 1,562 feet. P. E. Hill is drilling at 600 feet in No. 1 Roberts, SE cor. NE, Section 14-18-15. McAroy and others' No. 4 McKellop, NE cor. SE SW, Section 25-18-15, is dry and abandoned at 1,525 feet. J. M. Pennington's No. 4-A McHenry, SW cor. NE SW, Section 29-18-15 is dry and abandoned at 1,898 feet. The Penn Oil Co.'s No. 3-A McHenry, SW cor. NW NE, Section 1-17-14, is dry and abandoned at 1,335 feet. Hazlett and others' No. 2, CEL SE NE, Section 13-17-14, is dry and abandoned at 2,100 feet. L. J. Hutchinson's No. 3 Anderson, NW cor. SE, Section 34-16-13, is a machine rigging up.

W. B. Pine has a rig on the ground for No. 1, SE cor. SW, Section 35-16-15.

Riverland Pool, Tulsa County

Williams Wood Syndicate, No. 1-A Franklin, SE cor. SW, Section 36-19-11, had Taneha sand at 1,605-22 feet, and a show for a 5-bbl. well after a shot of 80 quarts. They expect to drill deeper.

Baker & Lynch are building the rig for No. 1 Franklin, SW cor. SW, Section 26-19-11. The Riverland Oil Co. is building the rig for No. 1 Gaylord, SE cor. SE, Section 27-19-11.

Sanders and others' No. 1 Dean, SW cor. NW SE, Section 27-19-12, is dry and abandoned at a total depth of 2,243 feet. The Shaffer Oil & Refining Co. is drilling at 839 feet in No. 8 Patridge, SE cor. NW NW, Section 4-19-12. The Shaffer Oil & Refining C.'s No. 9, CEL NW NW, Section 4-19-12, is drilling at 450 feet. Ike Simonds' No. 4 Partridge, CWL NE NW, Section 4-19-12, is drilling at 246 feet. Echo Oil Co. has moved a machine in for No. 3 Grayson, SE cor. NE NW, Section 5-19-12.

Munn Brothers have moved in a machine for No. 2 Yargee, CEL NE SW SW, Section 20-19-12. Thornton and others have moved in a rig for No. 1 Douglas, NE cor. NW SE, Section 21-19-12. Gladys-Belle Oil Co. is spudding No. 3 Postoak, NE cor. NW NW, Section 29-19-12. Brooks Drilling Co. has a machine for No. 2 Hawkins, NW cor. SW, Section 29-19-12. Brooks Drilling Co. has completed No. 4 Colbert, NE cor. SW SW, Section 29-19-12. It is making 2,000,000 feet of gas from sand at 840-55 feet. The Nowata Oil & Refining Co. has a 9,000,000 foot gas well in No. 2-A NE cor. SE, Section 30-19-12. Sand was from 1,948-89 feet.

Kay County Braman Pool

The Comar Oil Co. has completed No. 3 Duncan, NE cor. SE SW, Section 21-29-1w, for 190 bbls. in sand at 1,924-39 feet. The Comar Oil Co.'s No. 4 Duncan, NW cor. NE SW, Section 21-29-1w, is spudding. Comar Oil Co.'s No. 3 Kincaid, SE cor. NE, Section 21-29-1w, is a new rig. Comar Oil Co.'s No. 4 Kincaid, CWL SW NE, Section 21-29-1w, is drilling at 320 feet. The Comar Oil Co.'s No. 3 Priboth, CSL SW SE NW, Section 21-29-1w, is drilling at 630 feet. Comar Oil Co.'s No. 4 Priboth, NE cor. SE NW, Section 21-29-1w, is drilling at 428 feet. Comar Oil Co.'s No. 1 Murphy, CSL SW NE NW, Section 28-29-1w, is drilling at 435 feet.

The Prairie Oil & Gas Co.'s No. 1 Kiefer, CWL SW NE SE, Section 13-27-1, is dry and abandoned at a total depth of 2,502 feet.

Garber Field, Garfield County

The Roxana Petroleum Corp. has completed No. 7, SW cor. NW SW, Section 18-22-3w. Sand record on this well is not available, total depth, 2,335 feet. The well did 750 bbls. natural.

The Sinclair Oil & Gas Co. has completed No. 9 Hartley, NE cor. NW NW, Section 18-22-3w, an old well drilled deeper. Sand was at 2,239-64 feet; the well did 72 bbls. natural. Sinclair Oil & Gas Co.'s No. 2-B, NW cor. SE, Section 18-22-3w, had a hole full of water at 2,395-2,405 feet. It was plugged back

Empire Gasoline Company

Central Office
BARTLESVILLE, OKLA.
Subsidiary Empire Gas & Fuel Company

Manufacturers and Marketers

Natural Gasoline

Operating nine gasoline plants located in Kansas and Oklahoma

Save money on still lining maintenance

Get this big book free!

NO refinery in the country can afford to be without this big book. It shows how the cost of still and boiler linings can be sharply cut.
"Refractories and Furnace Design" tells how to prevent bulging of walls and falling of bricks—how to cut heat loss through the setting—how to do away with high-priced masons for lining installation, and with the stocking of special shapes—how to make repairing easy.
The coupon brings it—free!

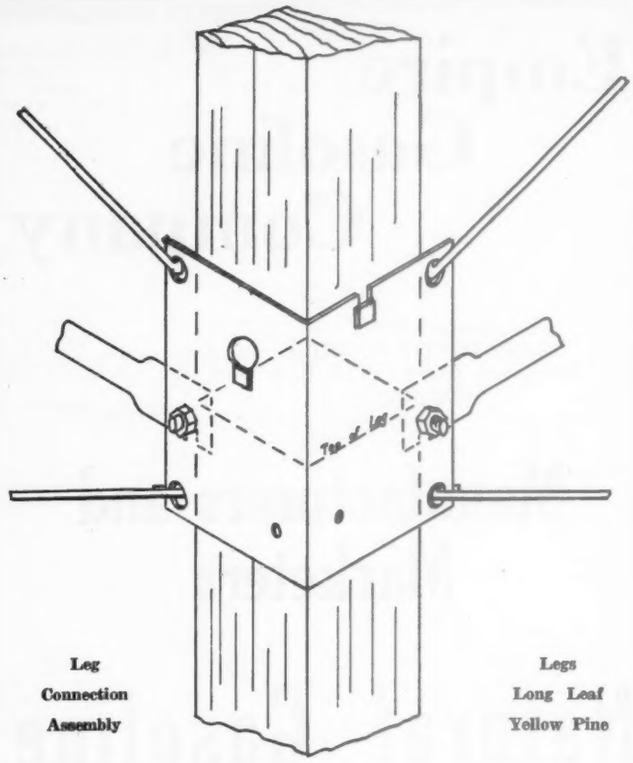
FACTORIES: CHICAGO, ILL., AND TRENTON, N. J.
CABLE ADDRESS "PLIBRICO"

PLIBRICO JOINTLESS FIREBRICK COMPANY

Mail the coupon--
to Plibrico Jointless Firebrick Co., 1146 Clay Street, Chicago—and get the free book.

Firm .....
Address .....
.....
My Name .....

O&G4—23R-RTG



Slater Bros. Turnbuckle Derrick Company

Office and Factory Sand Springs, Okla.
Phone 91

Production of Petroleum In 1924

Symposium of Petroleum Division American Institute of Mining & Metallurgical Engineers

Ready for Distribution
May 1, 1925---Price $2.50

Secretary's Office,
29 West 39th St. New York

to 2,261 feet and is making 15 bbls. from sand at 2,243-61 feet. The Crews Heirs Oil Co. is rigging up to drill an old well deeper in No. 18 Crews, NE cor. SW, Section 19-22-3w, old total depth at 2,207 feet.

The Sinclair Oil & Gas Co.'s No. 14 Kisner, NE cor. NW NE, Section 19-22-3w, is completed for 40 bbls. on the pump. Sand was at 2,179-89 feet, total depth 2,295 feet, plugged back to 2,200 feet.

The Marland Oil Co.-Mid-Continent Petroleum Co.'s No. 41 School Land, SE cor. SE, Section 13-22-4w, is a rig on the ground for a deep test. The Sinclair Oil & Gas Co. has completed No. 1, SE cor. NE, Section 13-22-4w. The well made 198 bbls. from sand at 2,320-31 feet. The Carter Oil Co. has a rig on the ground for a deep test in No. 52, C NE NE NW, Section 24-22-4w.

The Healdton Oil & Gas Co. is rigging up to drill an old well deeper, No. 28 Belveal, CEL NW NE, Section 24-22-4w. The Healdton Oil & Gas Co. has a rig on the ground for No. 29 Belveal, C NE NW NE, Section 24-22-4w. The Healdton Oil & Gas Co. is digging the cellar for No. 30 Belveal, C SE NW NE, Section 24-22-4w. The Sinclair Oil & Gas Co.'s No. 20 Belveal, SE cor. NE NE, Section 25-22-4w, is drilling at 965 feet. The Imo Oil & Gas Co. has a rig up for No. 10, CNL NE NW, Section 36-22-4w. The Rabbits Foot Oil Co. is rigging up No. 10, SE cor. NE NW, Section 36-22-4w.

Cleveland County

The wildcat well of the Carr Oil Co., No. 1 Duck, NE cor. SE, Section 21-10-4w, is dry and abandoned at a total depth of 2,550 feet.

Pottawatomie County Wildcats

The Darby Oil Co. and others are moving in a rig for No. 1 Davis, SE cor. NE, Section 15-7-4.

Hughes County Wildcats

Tommy Atkins and others are building the rig for No. 1 Sewell, SE cor. SW SW, Section 14-7-9.

Parmenter and others are building the rig for No. 1 Stewart, SW cor. NW SE, Section 11-5-8.

Johnston County

The Washita River Oil Co. and others' No. 1 Chivers, SE cor. NE, Section 9-4s-4 is dry and abandoned at a total depth of 2,632 feet.

The Belt Petroleum Co.'s No. 1, CSL SE SE, Section 29-1-1 is spudded.

Garvin County

The Texas & Pacific Oil Co.'s No. 4 Derdyn, SE cor. SW SE, Section 8-1-3w, is estimated at 100 bbls. in sand at 1,643-1,663 feet. It is being rigged up to pump.

The Texas Co.'s No. 6 Derdyn, NE cor. NW NE, Section 17-1-3w, is swabbing 25 bbls. from sand at 1,583-95 feet.

Merrick and others are building the rig for No. 2 Williams, SE cor. SW, Section 5-3s-2w.

Carter County

Simpson Fell's No. 1 Lowery, SE cor. SW NW, Section 9-4s-2w, an old well drilled deeper, had sand at 2,216-93 feet, sandy lime at 2,298-2,310 feet; sand at 2,310-97 feet, total depth 2,402 feet. It is good for 140 bbls.

The Humble Oil Co.'s No. 15 H. Walker, CWL SW NE SW SE, Section 9-4s-2w, is drilling at 888 feet. The Magnolia Petroleum Co.'s No. 4, CSL, SE SE SW, Section 16-4s-2w, an old well drilled deepr, is drilling at 2,305 feet. Max Westheimer's No. 15 Kalish C, south half SE NE, Section 16-4s-2w, is drilling at 2,690 feet. This is an old well drilling deeper.

South of Chickasha

Briscoe & Hall have completed No. 3 Culp, NE cor. NW NE, Section 6-5-9w. Broken sand was at 1,916-2,256 feet; the well is good for 50 bbls.

English & Jacobs' No. 2 White, CSL NW NE NE, Section 1-5-10w, is completed for 60 bbls. in a broken sand at 1,860-2,362 feet.

Noble & Westervelt are drilling No. 3 McCaughtry, CSL NE NE NW, Section 35-5-8w at 638 feet.

Stephens County

Frates Oil Co. and others' No. 1 Sweeney, CNW SW, Section 30-2-6w, is dry and abandoned at a total depth of 3,037 feet.

The Magnolia Petroleum Co.'s No. Green, NE cor. SW SW, Section 30-1-made 30 bbls. from sand at 2,013-20 fe

William Priddy has completed No. Coffelt, NE cor. SE, Section 26-1n-9w for a 2,000,000-bbl. gas well. Sand at 1,940-46 feet; total depth, 1,975 fe plugged back. William Priddy's No. Coffelt, CNL NE NE SE, Section 26-9w, is making 3,000,000 feet of gas fr sand at 1,867-1,939 feet.

The Kay Wye Oil Co. has a rotary t on the ground for No. 1 Hine, C SW, Section 25-1-9w.

CALIFORNIA SITUATION SHOWS LITTLE CHANGE

LOS ANGELES, Cal., April 20.—The California refined market situation has changed much in the past week. Refined oils of all grades are soft. In the Los Angeles area the recently unsettled retail market was bolstered temporarily but again appears slipping. The discounting of coupon books again is going into vogue and an increasing number of cut signs at special prices are noticeable. The marketers are hoping the late spring demand will make itself felt before any official price cuts are made.

The psychological influence of crude and gasoline cuts east of the Rocky Mountains remain very great on the Pacific Coast. The recently discovered Smackover deep sand heavy oil production is much feared by Pacific Coast marketers of fuel oil. For the time being, however, fuel oil in California and the Northwest is remaining steady in price, at least so far as marine and large industrial trade is concerned. Small spot sales by small refineries, however, are being made at a sacrifice. From these sources considerable high grade fuel oil and gas oil is available at prices as low as $1.15 a barrel. less than the base price of fuel crude in the field. The market on fuel crude is now $1.25 a barrel.

The kerosene market in California is featureless as is also the lubricating oil trade. Despite all the pessimism there have been no price changes except the downward revision of one-half cent in absorption natural gasoline. In this commodity, the market is spotty. While a few current sales are being made at 4 cents under retail gasoline, without tax, two large contracts have just been closed over a period of year at 3 cents under. The spot market is definitely established at 3½ cents to 4 cents under the retail gasoline price, without tax.

STUDY LEGAL PHASES OF OIL CONSERVATION

NEW YORK, April 18.—The Federal Oil Conservation Board is approaching consideration of the legal position of the Government in relation to production and distribution of petroleum in its progress toward the development of a national oil conservation policy.

The legal phases of the problem are expected to prove the fundamental factors in determining the board's program. Charles W. Waterman, general counsel of the board, is making an exhaustive anaylsis of the Government's relation to the operation of the oil industry under existing statutes.

He was asked to determine the Government's rights in all of their legal ramifications as relating to public lands, leasing prerogatives, pipe line regulatory powers, anti-trust phases as affecting price levels, and other questions which are to be taken into consideration by the board in determining a definite oil policy for the Government.

TO EXHIBIT TANK CAR PAINT

An educational exhibit of Duco on tank cars has been arranged by E. I. Du Pont de Nemours & Co. cooperating with the North American Car Co. These cars have been spotted directly south of the Frisco passenger depot on Boston Avenue, Tulsa, and will be open for inspection the remainder of this week.

COMMITTEE OF ELEVEN SCIENTISTS REPORTS ON PETROLEUM RESEARCH

BALTIMORE, Md., April 18.—Leaders of the oil industry, recognizing the wasteful methods of oil production, have caused a survey of the whole industry to be made by 11 prominent scientists and a great program of research to be drawn up, according to Dr. Charles H. Herty of New York, president of the Synthetic Organic Chemical Manufacturers, speaking before the division of industrial and engineering chemistry of the American Chemical Society.

Doctor Herty, who had read the report of the 11 scientists, predicted that a great increase in national wealth would result from it. Doctor Herty taxed the oil industry with failure in the past to use the resources of science for the development of its field.

His address covered the whole field of recent advance in chemistry.

In his discussion of the scientific side of the oil problem Doctor Herty said:

"Our great national assets of petroleum presents a remarkable phenomenon, yet somewhat typical of the past history of our country. It is estimated that about $9,000,000,000 has been invested in the American petroleum industry. The raw material, crude oil, has in the past been subjected only to certain physical processes, chiefly fractional distillation, with a limited amount of purification by simple chemical methods, the resultant products being used chiefly for fuel, lighting and lubrication.

New Spirit of Research

"Such chemical work as has been availed of in this field has been devoted largely to control of mechanical operations. The hurly-burly of oil exploitation seems to have practically excluded the research chemist, especially in the field of synthetic organic chemistry, and so this great mass of national wealth continues to be used almost totally for purposes, however important in our every day economics, that nevertheless could well devote a reasonable fraction of its income to the building up of products of higher value to civilization.

"Recently, however, there have been evidences of a new spirit of research striving to find itself articulate. Within the past year an able survey of the roads of research and the remarkable possibilities resulting therefrom has been canvassed by a commission of 11 most prominent scientists in this country.

"Their views and their findings have been put into definite shape. The realization of the great program prepared awaits now only concurrence in the importance of the work on the part of the financial leaders of the industry and the willingness on their part, to set aside a small fraction of their investment annually to start this work in full force.

"The day may come when petroleum has become so diminished in volume that we will have passed on to other means for fuel lighting and lubrication.

"It has been estimated that, leaving out other factors and taking the success attributable to the application of scientific research as 100 per cent in the cases of the coal-tar chemical industry and the electrical industry, that proportion in the petroleum industry is less than 7 per cent. That is a serious indictment in these modern days of scientific advance."

A new and broader attack through research in the derivatives of the hydroacetylene series, now thought of as scientific curiosities and high in price, was advocated by Doctor Herty, who said:

"The time has now been reached when we are justified in picturing to ourselves practically unlimited quantities of any of these compounds and at prices amounting to only a fraction of those of today, if we can find suitable application for the materials.

"This calls for a re-examination of this great class of substances. For this examination we should develop a new type of research man possessed of a broad training, of a thorough knowledge of the uses of material, of the requirements of various industries and of an imagination which can portray an entirely new order of things. In the training of such men the universities and the industries should work together."

Achievements of Science

Mass production will profoundly influence the future of the synthetic organic chemical industry, said Doctor Herty, who warned that a monster dye monopoly is forming in Germany with Government aid to capture the export market of the world.

There is grave danger ahead for American manufacturers, Doctor Herty said, for in this country there is entirely too wide a distribution of manufacture of products for which only a limited market exists. This, he said, has led to too intense competition for an effective competition with Germany.

"Somewhere contraction must take place," said Doctor Herty, "and I know of no more important question today than the proper working out of this process of contraction, so that the result will be an equitable distribution of the synthetic organic chemical industry in many lands. Let us not deceive ourselves and fail to recognize the bitterness of the struggle that will accompany that process of construction."

Chemistry has forever freed America from the possibilities of sugar famine by the discovery of a dextrose, Doctor Herty declared.

"From the corn grain itself commercial glucose has been manufactured for many years," Doctor Herty explained, "but because of the difficulties of crystallization and the presence of accompanying dextrines the field of its utilization has been somewhat circumscribed.

"A brilliant technical achievement now brings on the market in practically unlimited quantities a white, crystalline dextrose of 99.85 per cent purity on a dry basis. The future of this remarkable product is unlimited. Approximately three parts must be used to obtain the same sweetening effect.

"However, it has on its side a well recognized advantage of ease of digestion. As we recall the acute sugar shortage during the recent war, it is a comforting thought to feel that our nation is forever freed from such hardship in the future, for if any shortage should again occur, one of our greatest crops, corn, in the hands of chemists, can readily make good the shortage.

"Sooner or later, I am confident, certain adverse features of our pure food laws which now restrict its use, because at the time of their adoption no such products existed, will be so modified as to give to dextrose, chemically a true sugar and of such exceedingly high purity its rightful place in the daily life of the nation."

Field of Synthetics

Great strides have been made in the field of synthetics of non-coal-tar origin, according to Doctor Herty, who said that a multitude of new lines of development are now going forward. He added:

"In the field of the alcohols, utilization of waste molasses from the sugar industry has given us not only a great supply of commercial alcohol but through the brilliant work of a trained research staff new light has been thrown on the supposedly well-known fields of dehydration and esterification. One firm alone has a potential capacity of 10,000 gallons per day of absolute alcohol.

"Through fermentation processes, a considerable quantity of the corn crop of the Middle West is being transformed into butyl alcohol and acetone, which are finding greater and greater use as solvents. Development of tetraethyl lead has been another triumph of chemistry, and is being turned out in enormous quantities for the use of motorists. Of equal magnitude is the development of ethylene bromine."

After giving figures on the great quantities now being manufactured of certain groups of chemicals which a few years ago were laboratory curiosities, the speaker continued:

"Among the medicinals, tonnages com-

SAND SPRINGS HOME
GASOLINE DEPARTMENT
MANUFACTURERS OF
ALL GRADES
NATURAL GASOLINE
SAND SPRINGS, OKLAHOMA

J. A. HULL, President
B. E. BLANKENSHIP, Sales Manager
A. C. TYRRELL, Treasurer
Liquified Petroleum Gas Company
MANUFACTURERS AND DISTRIBUTORS
ALL GRADES
NATURAL GASOLINE
Prompt and Efficient Service
IN OUR OWN
TANK CARS
General Offices
MID-CONTINENT BUILDING
TULSA, OKLAHOMA

Stebbins Oil & Gasoline Company

Oil Producers
and
Manufacturers of
Casinghead Gasoline

Atlas Life Bldg. Tulsa, Oklahoma

J. H. McCoy, *President* — R. R. Rosier, *Sales Manager* — H. R. Johnson, *Secretary & Treasurer*

The Akin Gasoline Company

MANUFACTURERS AND MARKETERS
OF ALL GRADES

NATURAL GASOLINE

Exchange National Bank Bldg.
TULSA, OKLAHOMA

pared to those products above mentioned are not to be expected, but the value of these compounds to the health and happiness of our people make the appearance of each striking new product a signal for rejoicing.

"The hypnotic barbital, the local anaesthetic butyn, the esters of chaulmoorga oil which are a valuable agent against leprosy, are evidences of activities in the research laboratories of our medicinal manufacture. It is a gratifying thought that as new compounds or hitherto little known compounds, have their therapeutic value proved, we now have abundant scientific skill to insure the manufacture in large quantities and in a high state of purity. How important is this high state of purity may be illustrated by the fact that perhaps the best curative known today for the so widely prevalent hookworm disease is found to be carbon tetrachloride, not the commercial carbon tetrachloride, however, but only that of the very highest purity."

COLOMBIA SYNDICATE DEVELOPING COMPANY

South American Oil & Development Co., whose contract to develop the Colombian properties of Colombia Syndicate, has been approved by stockholders of the latter, is controlled by British and American oil men, including, it is said, Standard Oil Co. of Indiana interests, as part of the plan of Standard of Indiana to secure oil reserves in Mexico and South America, the most important part of which was the acquisition of control of Pan American Petroleum & Transport Co.

Sir James T. Currie, head of the British-Mexican Petroleum Co., is head of the new South American Oil & Development Co. The arrangement calls for immediate development of the Colombia properties on a royalty basis, giving Colombia Syndicate an average of a 30 per cent royalty. This transaction replaces the proposed contract with Atlantic Refining Co.

TEXAS CITY TERMINAL ESTABLISHES RECORD

Texas City, Tex., has broken another record in the handling of 3,121,708 bbls. of import, export and coastwise crude and refined petroleum over the wharves of the Texas City Terminal Railway Co. during March, 1925. The previous high record was 2,742,696 bbls. during September, 1924. The increase in the volume of petroleum passing through the Texas City terminals is shown as follows: 1918, 1,258,082 bbls.; 1919, 1,549,407 bbls.; 1920, 13,616,297 bbls.; 1921, 20,367,397 bbls.; 1922, 17,169,071 bbls.; 1923, 17,214,806 bbls.; 1924, 24,690,466 bbls.

An average of 2,000,000 bbls. per month was received and forwarded during the 12 months of 1924, which monthly record surpasses the entire number of barrels handled for either of the years 1918 or 1919. The figures for March, 1925, follow:

GREATER PROGRESS IN NATURAL GASOLINE

(Continued from Page 99)

Adsorption proceeds until equilibrium occours between the adsorbed gasoline and that remaining in the gas. Then adsorption ceases. It so happens, however, that the vapor pressure of gasoline adsorbed in the pores of charcoal is much lower than that absorbed in oil. Therefore, extraction is more complete.

Stabilized Gasoline

The introduction of the charcoal and stabilizing processes have resulted in the extraction of more saleable gasoline from natural gas. The material contains less of the wilder constituents (principally propane) and more of the butanes. As a consequence the Be. gravity of the material has risen, for the same recovery on distillation. To meet this new condition the Natural Gas Association of America has added two additional grades of gasoline, Grades Double A and Double B.

Stills

Stills in common use today in the Mid-Continent Field are shell stills, over a brick setting and fire heated. They use one-half as much fuel as steam stills. However, some steam is added for its partial pressure and sweetening effect.

The common steam still is the shell type with a bed of oil, up through which the steam bubbles. More efficient steam types are packed columns, of the Foster type, in which descending charged oil meets ascending steam.

Where fuel is cheap the steam still is desirable. Otherwise the fire heated still is best. Curiously enough, in the East where fuel is expensive, steam stills are used while fire stills are common in the West. However, fire stills introduce a fire hazard which must be considered.

The fuel erquirements of a steam heated still may be calculated as follows:

Gasoline weighs 5.5 pounds per gallon.

Specific heat of gasoline=.58.

Latent heat of vapor of gasoline=100 B. t. u. per pound.

Specific heat of absorption oil=.50.

Absortent oil weighs 7 pounds per gallon.

Saturation of gasoline in oil=5 per cent by volume.

Temperature of oil to still 165 degrees Fahrenheit.

Temperature of oil leaving still 222 degrees Fahrenheit.

5.5 x 100 = 550 B. t. u.
5.5 x .58 (220—105) = 175 B. t. u.
140 x .50 x 55 =3,850 B. t. u.
Total B. t. u. per gallon =4,575 B. t. u.

In an ordinary steam still at least three times this heat or 4,575x3=13,725 B. t. u. will be required.

If 70 per cent boiler efficiency is attained it will require 13,725÷.70 or 19,607 B. t. u. in the fuel gas per gallon of gasoline produced. If 1,500 B. t. u. gas (rich tail gas) is used, there will be required 19,607÷1,500=13.07 feet of

(Continued on Page 184)

BULK OIL HANDLED THROUGH THE PORT OF TEXAS CITY DURING MARCH, 1925

Company—	Refined	Crude	Total
Humble Oil & Refining Co.	.....	2,140,946.06	2,140,946.06
Marland Refining Co.	73,967.00	307,544.00	381,511.00
Swiftsure Petroleum Co.	.....	366,429.63	366,429.63
Vacuum Oil Co.	.....	217,748.40	217,748.40
Pierce Petroleum Corp.	15,073.00	.....	15,073.00
Total	89,040.00	3,032,668.08	3,121,708.08

EXPORTS FROM TEXAS CITY

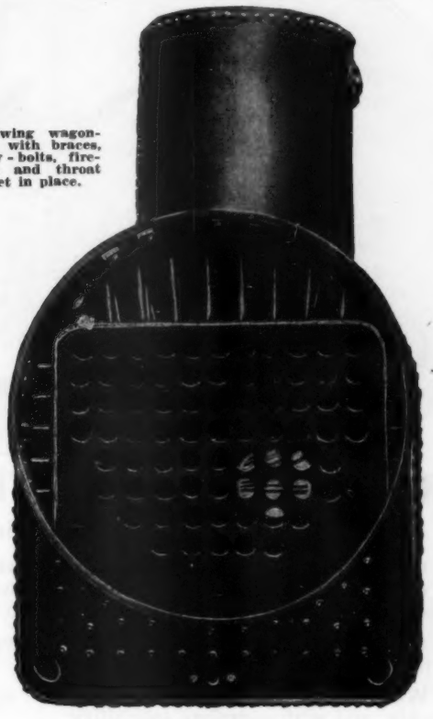
Company—	Refined	Crude	Total
Humble Oil & Refining Co.	.....	37,982.49	37,982.49
Marland Refining Co.	73,967.00	112,799.00	186,766.00
Pierce Petroleum Corp.	15,073.00	.....	15,073.00
Total	89,040.00	150,781.49	239,821.49

DOMESTIC EXPORTS OF PETROLEUM AND REFINED PRODUCTS

		—Month of February—		—8 Mos. Ended Feb.—	
		1924	1925	1924	1925
Petroleum, crude	Gals.	69,352,066	46,720,004	522,719,476	437,214,365
	$	2,365,982	1,967,327	16,120,406	15,787,911
Total refined petroleum	Gals.	318,611,522	277,274,266	2,304,669,797	2,561,721,333
	$	31,446,726	28,952,941	211,048,606	248,274,651
Gasoline, naphtha and other light products	Gals.	102,796,595	100,683,798	630,098,838	784,439,133
	$	13,562,900	14,343,035	87,303,623	106,969,036
Illuminating oils	Gals.	73,294,746	54,697,611	581,592,002	605,886,594
	$	7,307,205	4,901,706	49,877,674	55,487,760
Gas and fuel oils	Gals.	109,137,664	98,123,560	878,997,206	933,496,686
	$	3,384,066	3,565,039	25,329,111	33,526,033
Lubricating oils	Gals.	33,382,817	26,769,297	213,980,752	232,899,466
	$	7,191,655	6,143,161	48,538,198	52,291,532
Paraffin wax	Lbs.	36,861,966	25,601,139	238,260,272	234,853,738
	$	1,481,784	1,422,631	8,590,229	13,424,803

DONOVAN BOILER WORKS

Parkersburg, W. Va.



Showing wagon-top with braces, stay-bolts, fire-box and throat sheet in place.

A glance at this cut will surely convince you they are built to stand the hard service they will get in the oil country.

Forty-two years in the business surely fits us to build a *GOOD BOILER.*

Dry steam from a dome where it should be.

Frick-Reid Supply Company

Sole Distributors West of Mississippi River

Handled by leading supply companies throughout Eastern Fields

DONOVAN BOILER WORKS, Inc., PARKERSBURG, W. VA. New York Office: 30 Church St.

BIT AND JAR-STEEL

BOX-PIN-STEEL-SLIP-STEEL

UNDER-REAMER-BODY and CUTTER STEEL, DRILL COLLAR STEEL

ASCO

CAPPING and SOCKET STEEL TOOL-JOINT STEEL

SPECIAL-HIGH-GRADE

SPECIAL ALLOY STEEL

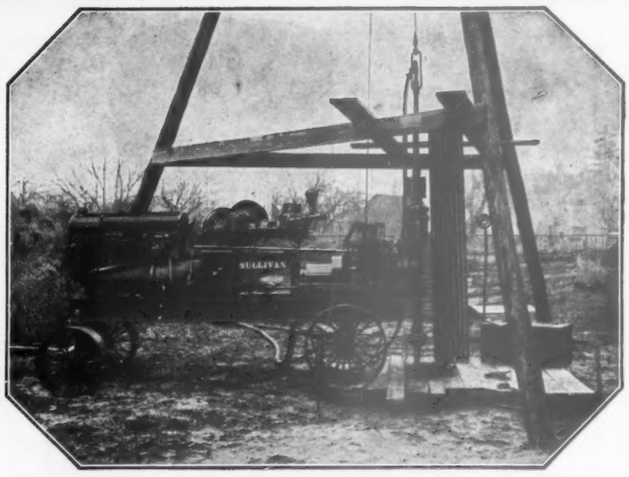
FORGING-BILLETS

QUALITY and SERVICE

Manufactured By

ANDREWS STEEL CO.

NEWPORT, KY.



RAPID STRUCTURE TESTING

Is Aided by this New Sullivan Diamond Drill

It's a standard CN Drill, removing 2-inch cores, driven by direct connection from a Fordson engine, and mounted complete on a heavy channel iron truck with wide wheels.

A double-acting Duplex Pump gives ample circulation in the hole.

With this rig you can move quickly, set up quickly, drill quickly, and with complete reliability.

It's a Sullivan Drill

New Bulletin No. 1580-A

SULLIVAN MACHINERY CO.

Dallas
New York

88 East Adams St.
CHICAGO

Tulsa
Garber

Our Five Acre Plant located in the heart of the refining district of the Mid-Continent. One reason every employe knows how refining equipment should be built.

Tulsa Boiler & Machinery Co.

SHOPS LOCATED AT
WEST TULSA

P. O. Address
Box 1963, Tulsa

Phones
33000 and 9919

WOODBRIDGE CHOSEN TEXAS CO. TREASURER

HOUSTON, Tex., April 18.—No changes were made in the directorate of The Texas Co. at the annual meeting of stockholders here. Only a few changes in the official roster were made by the directors at the meeting following that of the stockholders.

W. W. Bruce, of New York, was promoted from treasurer to a vice presidency, succeeding C. E. Hermann, deceased. C. E. Woodbridge, sales manager of the northern district, was elected treasurer to succeed Mr. Bruce.

R. Heckler, of New York, was elected assistant secretary and assistant treasurer, succeeding A. C. Miglietta, resigned, and J. S. Ballard, of Houston, was elected assistant secretary, succeeding S. I. Payne, resigned.

Dan J. Moran, of Houston, who was elected a director some time ago to take the place of Mr. Hermann on the board after the death of the latter, was re-elected a director and member of the executive committee.

The board of directors of the company is composed of E. C. Lufkin, Amos L. Beaty, R. C. Holmes, C. B. Ames, L. H. Lippman and J. N. Hill, of New York; T. J. Donoghue, G. L. Noble, C. P. Dodge and D. J. Moran, of Houston; J. J. Mitchell and F. D. Stout, of Chicago, John H. Lapham, of San Antonio.

The executive committee is composed of E. C. Lufkin, chairman; Merrs. Beaty, Hill, Mitchell, Donoghue, Holmes, Ames and Moran.

The complete roster of officials is as follows:

E. C. Lufkin, New York, chairman of the board; Amos L. Beaty, New York, president; T. J. Donoghue, Houston, first vice president; R. C. Holmes, New York, vice president; G. L. Noble, Houston, vice president; W. W. Bruce, New York, vice president; D. J. Moran, Houston, vice president; C. B. Ames, New York, general counsel; C. P. Dodge, Houston, secretary; C. E. Woodbridge, New York, treasurer; Ira McFarland, Houston, comptroller; F. L. Hanks, New York, assistant to the president; Ernest Carroll, Houston, assistant to the first vice president; P. C. Scullin, New York, assistant to Vice President Holmes; Guy Carroll, Houston, assistant secretary and assistant treasurer; R. Heckler, New York, assistant secretary and assistant treasurer; J. S. Ballard, of Houston, W. G. McConkey, of New York, E. M. Crone, of New York, James A. Merlis, of New York, and J. B. Duke, of Houston, assistant secretaries; D. B. Tobey and L. H. Lindeman, of New York, and A. M. Donoghue, G. W. Foster, T. A. Spencer and H. G. Symms, of Houston, assistant treasurers.

"Conditions in the oil industry are very favorable at this time," said Mr. Lufkin, "due to the even balance between production and consumption. When there is a lack of balance with either up and the other down, it makes for a certain amount of demoralization in the industry, but with production and consumption about even we look ahead and go ahead with a comparative degree of sureness."

A group of high officials of The Texas Co. visited Corsicana on a tour of inspection of its East Central Texas properties. F. L. Hughes and P. T. Thorns assisted in making the inspection. Among those in the party were E. C. Lufkin, chairman of the board of directors; Amos L. Beaty, president of the company; T. J. Donoghue, J. L. Dowling, D. T. Moran and W. D. Manley, vice presidents, and several secretaries.

REFUSES ANGLO-PERSIAN CO.

Sir Charles Greenway, chairman of Anglo-Persian Oil Co., Ltd., admits the Argentine Government has refused to extend his company's concession in the Comodoro Rivadavia fields. The Government proposes to develop these fields itself. The Bethlehem Steel Co. is building the refinery in La Plata with a capacity of 2,000 tons daily on a basis of cost price plus 10 per cent.

GOVERNMENT PROGRAM IN CRACKING CASES

WASHINGTON, D. C., April 18.—Attorney General Sargent expects the proceedings instituted by the Government on the "'cracking process" to be expedited to an early conclusion. Mr. Sargent is giving close attention to both the patent suit against oil companies and also to the investigation being conducted by the department in gasoline prices.

The price investigation, Mr. Sargent said, is going ahead steadily and the department's agents are engaged in collecting and compiling extensive information relative to prices and price levels.

A short cut to an early conclusion of the patent suit was reported by the Attorney General.

"Government counsel," he said, "are in Chicago to submit to the court for its approval interrogatories under the equity rules which are designed to establish basic facts upon which the Government will proceed with its action. The court appointed a special master to take the proofs in order to save time and money and avoid the burdensome procedure of taking all testimony in open court. The preparation of the case from the Government viewpoint, is proceeding as rapidly as facilities will permit."

The Government is understood to be placing great reliance upon the interrogatories submitted to the special master in Chicago to disclose the extent of the patent rights held by the various oil companies as a means of simplifying the proceedings. It is believed that if the Government can ascertain the exact ownership of various patent rights its effort to show the effect of the control of these patents would be simplified but there is some doubt as to how far the court will go in requiring the defendant companies to disclose their ownership of patent rights as differentiated from their use of these patents.

AUTOMOBILES GENERATE 340,000,000 H.P. DAILY

"Automobiles in this country are generating 340,000,000 horsepower a day.

"Natural gas engines, blast furnace engines, producer gas engines and many kinds of oil engines are daily generating many millions of horsepower for all kinds of purposes. Three million horsepower was built into the Liberty engines in the war for aircraft alone. The total horsepower from oil and gas today dwarfs that from steam and water combined, reversing completely the conditions of a quarter of a century ago. The opportunities for conservation of the oil and gas fuel used in this enormous output are very great, as only 1 per cent saving in fuel represents several million cubic feet of gas or gallons of oil."

Thus declares Dr. W. F. Durand, president of the American Society of Mechanical Engineers, which, with 14 other national technical organizations containing membership of 75,000—physicists, chemists, engineers and operating men—will devote the week of April 20 to meetings throughout the country at which the leading problems of conservation of oil and gas for power purposes will be discussed.

ESTHONIA SHALE SOLD

WASHINGTON, D. C., April 18.—Almost the entire 1924 output of oil shale in Esthonia was placed on the market, and it is estimated that an economy of 5,644,000 poods of coal, or 56,480 cubic fathoms of firewood was made possible in consequence, according to the Department of Commerce. The aim of the administration of the Esthonian oil shale mines is to supply the domestic industries and railways with fuel and oil and to increase the exportable quantity of these products. Annual oil shale requirements of the country are stated to include 10,000,000 poods for cement plants, 20,000,000 for other industries, 12,000,000 for railways and 3,000,000 for various other consumers, making a total of 45,000,000 poods.

PARMACO
PARKERSBURG MACHINE CO.
PARKERSBURG, W. VA. U.S.A.

STOP WASTE OF GAS AROUND CASING THREADS USE

PARMACO DOUBLE GLAND STUFFING BOX CASING HEADS

=

PARKERSBURG MACHINE CO.
PARKERSBURG W. VA.

PAN-AMERICAN WESTERN RUMORS IN CALIFORNIA

Possibly affecting the holders of Pan American Petroleum & Transport stock is the intention of E. L. Doheny to offer rights to subscribe to the new stock of Pan American Western, which will be organized to operate properties in California. It is expected many owners of Pan American stock in Southern California, who have followed the Doheny flag since the early days in Mexico and through the meteoric career of Mexican Petroleum on the stock exchange, will exercise their rights. This company will be managed by Mr. Doheny as chairman of the board.

It is not clear thus far just what the plans are for the Pan American Western Co. Conjectures in the stock market, says the Los Angeles Times, have centered around California Petroleum and General Petroleum as two companies that might enlist under the Doheny banner. The former is generally recognized as practically a property of Blair & Co., Inc., the investment house that figures prominently in the Pan American Eastern deal. This firm is the banker for the Doheny company and about two years ago installed one of its partners, now resigned, as chairman of the executive committee of California Petroleum. Naturally the stock market expects this community of interests to result in an actual consolidation.

As far as General Petroleum is concerned, it is understood tentative offers have been made to the Barnesons, but that no agreement has been reached on the question of price. A few years ago Captain Barneson held his stock around $70 a share and is credited with taking the attitude that those who wanted to buy control would have to pay his price.

Without the inclusion of other companies, the Pan American holdings in California comprising the new Pan American Western are estimated by one of the officials at approximately 58,000 acres. This includes the 30,000 acres in the Naval Reserve lease, the legality of which is questioned by the Government and on which a decision is expected at any time. The company has a new refinery at the harbor turning out more than 30,000 bbls. of gasoline daily, and with a capacity of 40,000 bbls. A lubricating plant also is in operation, and a pipe line from Kern County, held in the name of the Midway Pipe Line Co., is in the course of construction. No accurate estimate on daily production is obtainable.

Nearly 60 retail service stations are in operation in and around Los Angeles, and sites have been acquired for expansion into the northern part of the State.

Conjecture also credits Mr. Doheny with plans for the acquisition of valuable oil land in other parts of the Southwest.

HOOVER ON OIL POLLUTION

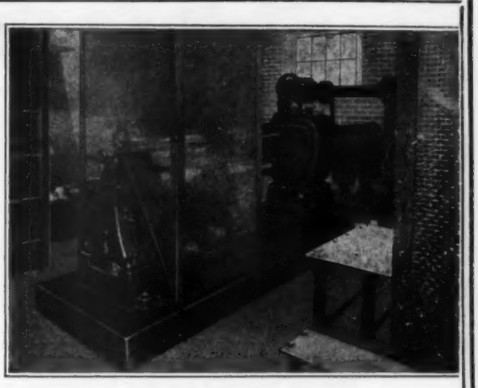
WASHINGTON, D. C., April 18.—Secretary Hoover is opposed to any legislation which would require all streams in the country to be freed from oil pollution, it has been said at the Commerce Department, although he feels that nearly all of the navigable streams could be freed from oil. The Commerce Secretary maintains that there should be a careful investigation made to determine whether there are any localities which would be injured should a nationwide oil pollution law be enacted.

SHELL ORDERS MOTORSHIPS

Twelve tank motorships are under construction abroad for the Shell Oil Co. and will be completed early next year. Ten will be of 10,000 tons each, and all are expected to make Los Angeles, Calif., on periodic calls, en route to the Orient from Europe. The two smaller tankships of 5,000 and 6,000 tons each, will be restricted to operations nearer home. The Shell company operates at present 160 big tankers all over the world, and 40 other craft, many of which are case oil carriers.

Kinney

Depend upon it it's a Kinney Pump



Steady Continuous Service

—hour after hour, day after day,—requiring little or no attention, giving a steady consistent flow of the heaviest crudes, asphalt, tar and all viscous and bituminous products. When you find this condition, it is more than an even chance that it is a KINNEY PUMP.

Thousands of KINNEY PUMPS are telling the same story of consistent efficiency in refineries that dot the map of the United States and foreign fields. Low cost operation, low cost maintenance, trouble-proof service under all conditions,—these are the reasons why so many plants are depending upon KINNEY PUMPS—and why it would be profitable for you to investigate this pump in both its types—steam jacketed and plain.

Let Us Send You Data

KINNEY MANUFACTURING COMPANY
Boston, Mass.

Philadelphia
Chicago
New York
Kansas City
Houston
San Francisco
Los Angeles

METERS

For Measuring Production and Distribution of

Oil—Gasoline—Gas

and Other Fluids

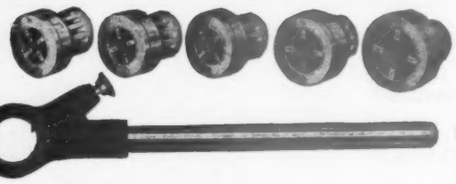
Please note change of address

PITTSBURGH METER COMPANY

General Offices and Works:
7800 Susquehanna St., PITTSBURGH, Pa.

SALES OFFICES:

New York—50 Church St.
Chicago—5 South Wabash Ave.
Kansas City—Mutual Bldg.
Columbia, S. C.—1433 Main St.
Seattle—4038 Arcade Bldg.
Los Angeles—Union Bank Bldg.



A "TOLEDO" TOOL

That Gets the Corner Job Easily.

The "TOLEDO" No. 00 ratchet tool for threading ⅛" to ¾" pipe is "JUST RIGHT" for these sizes.

It is so light it can be carried in the pocket, and so compact it reaches the out-of-the-way job easily and cuts perfectly true tapered threads, assuring tight joints.

Dies are removable and may be reground when dull, or replaced at small expense.

It is the tool you need for threading that small pipe.

Your jobber can supply you, or a postcard to us will bring you complete details and prices.

Just a snap of the Pawl and Die Heads are changed instantly

Buy by Comparison and You'll Buy a

"TOLEDO"

THE TOLEDO PIPE THREADING MACHINE CO.
Toledo, Ohio
NEW YORK OFFICE, 50 CHURCH ST.

Producers
Crude Petroleum

Manufacturers
Absorption Gasoline

Oklahoma Eastern Oil Co.

Tulsa - - - - Oklahoma

P. O. Box 1483 Phones—L. D. 8 and 9—Local 6163

GREATER PROGRESS IN NATURAL GASOLINE

(Continued from Page 180)

gas for operating the open type of steam still per gallon of gasoline produced.

If a fire heated still is used it will theoretically require practically the same amount of heat or 4,575 B. t. u. per gallon of gasoline. It is true that a higher still temperature will be maintained but most of this additional heat will be covered in the heat exchangers. If and H. R. T. boiler is used as a still, 45 per cent efficiency should be obtained, since a slower fire must be used than with a boiler.

4,575÷.45=10,617 B. t. u.

10,617÷1,500=6.78 feet of gas for a direct fire heated still per gallon of gasoline. At 40 cents per 1,000 for gas, this is .27 cents per gallon of gasoline produced.

F. E. Hosmer's method of distilling gasoline from saturated absorbent oil under reduced pressure is sound. Still temperature below 100 degrees Fahrenheit and a "vacuum" up to 25 m.m. of mercury are carried in the still Hence less fuel is needed. Such a still will use less fuel than any other type. It is more expensive to build because it has to be strongly braced internally.

Heat Exchangers

Most heat exchangers are of home made double pipe type. They are inefficient and usually develop leaks. Certain well built patent tubular types are more efficient. The natural gasoline industry (and the refining industry, too, for that matter) is in need of reliable heat exchange data on different types of heat exchangers.

An inquiry the writer made into heat exchangers some time back leads him to believe that a "K" of 30 B. t. u. or better should be obtained with all exchangers working on absorbent oil. This is the B. t. u. per degree mean temperature difference per hour. It is a function of the velocities of the liquids on both sides of the heat transferring surface. When velocities are high, the oil flow becomes turbulent and a large number of fluid particles are brought to the pipe walls and more heat is transferred than when the oil moves slowly. However, high velocities mean high pump pressure, so there is a limit to pressures which should be used.

It is customary to stop short of 80 per cent heat saving. The last 20 per cent costs too much in exchanger capacity to secure.

The methods of arriving at exchanger surface follows:

B. t. us.=Gallons oil per x wt. in pounds per gallon x sp.ht. oil x temp. reduction desired.

M. T. D.=The mean temperature difference in a contra flow unit is as follows:

T=Temperature hot oil entering.
T_1=Temperature hot oil leaving.
t=Temperature cold oil entering.
t_1=Temperature cold oil leaving.

To obtain the mean temperature difference

$$\frac{T}{t_1} \quad \frac{T_1}{t}$$
$$\text{Diff.} \quad \text{Diff.}$$

Add these differences and divided by 2 to get the arithmetic mean. This is not the correct mean. The latter is found by the formula

$$d = \frac{T - t}{\log_e \frac{T}{t}}$$

Where d=M.T.D.
T=Max. diff.
t=Min. diff.

$$\frac{\text{B.t.u. to be removed per hour}}{(\text{M.T.D.})\ K} = \text{sq. ft. surface}$$

K can only be determined by experiment. As already stated, 30 B. t. u. can safely be used for double pipe exchangers. Certain patent tubular types run much higher.

Oil Cooling and Condensing Coils

The writer believes that exposed coils over which water is misted and sprayed are the most efficient. One gets a cooling effect due to evaporation of the

333 Years

One item is a recent Oil and Gas Journal enabled a subscriber to make $2,000—enough to renew his subscription up to January 10, 2258.

One idea in a single line may be the means of making or saving hundreds of dollars for you.

Renew your subscription promptly and you will receive America's Greatest Petroleum Publication every week.

THE OIL AND GAS JOURNAL

Tulsa, Oklahoma

"The Oil Man's Bible"

BROWN Electric Pyrometers offer these advantages to oil refiners

1. An accurate, dependable means of measuring your temperatures.
2. Indicating Pyrometers, with switchboard, which will indicate temperatures at practically any number of points.
3. Recording Pyrometers which will continuously record temperatures.
4. Being electrical, the instruments may be located at any distance from point measured.
5. Because of the Brown Automatic Cold Junction Compensation, patented Dec. 28, 1920, readings are not affected by changes at the cold end of Thermocouple, along wiring or around the instrument itself.
6. Brown Pyrometers—Indicating and Recording, can be furnished to *automatically* control temperatures.
7. Suitable thermocouples *especially* developed for the Oil Industry.
8. A country-wide, readily available Pyrometer Engineering Service is maintained by us, to install, check, correct or extend your equipment to meet your needs.

We invite your inquiries on all matters touching temperature and pressure control.

Brown Pyrometers

Address The Brown Instrument Company, 4535 Wayne Avenue, Philadelphia, Pa., or one of our district offices in New York, Boston, Pittsburgh, Detroit, Chicago, Birmingham, Houston, Tulsa, St. Louis, Denver, Salt Lake City, San Francisco, Los Angeles or Montreal.

water. Water upon evaporation cools itself. Its latent heat of evaporation is 970 B. t. u. per pound. Assume that cooling water for gasoline condensing coils amounts to 25,000 gallons per day in a closed condenser and has a temperature of 100 degrees Fahrenheit. Also assume that instead of the closed condenser a spray coil is used and atmospheric conditions are such that 2½ per cent of the water is evaporated in the sprays.

Therefore, 5,206 pounds (2½ per cent of 25,000 x 8.33) will have evaporated. This means that 5,049,820 B.t. u. (970 x 5,206) will have been removed from 25,000 gallons of water. This will cool 25,000 gallons (208,250 pounds) of water 24.5 degrees Fahrenheit. So that instead of water of 100 degrees Fahrenheit there will be available water of a temperature of 75.5 degrees Fahrenheit. Used to cool absorbent oil before going into the absorption towers, more gasoline will be absorbed per unit volume of oil, less oil will be needed, hence less steam and less absorber capacity, smaller pumps, etc. The quantity of oil, more than any other one factor, fixes the capacity of oil absorption plants.

Closed condensers, if properly built, have one advantage. They bring condensate and gas into intimate contact, thus scrubbing the gas cleaner than is the case in open coils. The author does not know what this amounts to in concrete terms of gasoline saved, nor has he found any maker of closed condensers who has this data.

However, condensers, coolers and heat exchangers are going to get a thorough overhauling in the next few years from the standpoint of efficiency of various types. They are too important in plant operation to be neglected much longer.

Pipe surface for cooling coils can be calculated the same as exchanger surface. From the author's limited observations velocities are generally so low that poor heat exchange is attained. This means excessive pipe coils. They probably should be calculated using a "K" of 20 B. t. u. and 2-inch pipe in headers a. In these calculations certain water temperatures have to be assumed. This varies in Oklahoma, temperatures over 100 degrees Fahrenheit to those below freezing.

Depletion of Properties

All natural gasoline properties undergo depletion. The gas flow declines and the gasoline content in g.p.m. increases, but finally the gasoline produced per day shrinks. There is no rule which is applicable to all properties, but usually the decline is more or less constant in any particularly pool.

The author recently collected considerable data on this subject from different fields. A few examples follow.

In the Burkburnett Field, Texas, in approximately three years' time in one group of wells, the gas declined from 89,008 to 32,658 feet per day and the g.p.m. increased from 7.72 to 16.65. This was a decrease from 789 to 544 gallons of gasoline per day.

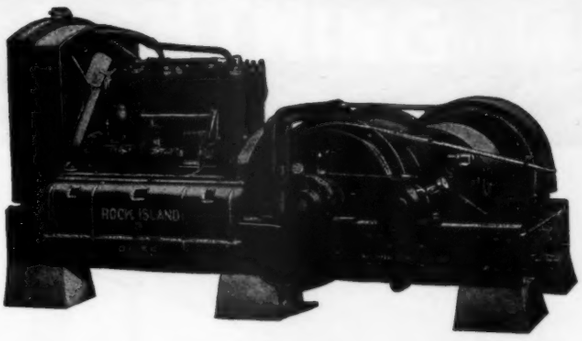
In another group of wells near Bigheart, Okla., the gas over four years' time declined from 168,000 to 3,500 feet per day, and the g.p.m. increased from 0.9 to 3.30. This was a decrease from 151.2 to 3.30 gallons gasoline per day.

Certain wells near Homer, La., showed a decrease in gas flow from 5,000,000 to 1,100,000 feet per day. The g.p.m. increased from 1.0 to 10.7. The daily gallonage increased in two years time from 5,000 to 11,770 gallons.

a. Sufficient pump pressure must be used to get the proper velocity. Operators in general, do not recognize the importance of high velocities for efficient heat exchange.

The writer could list a great deal of data on this subject but this article is only intended to touch certain high spots of the natural gasoline industry. It can be said, however, that the three instances cited are typical of the violent fluctuations in gasoline production of a plant (usually downward) that an operator may encounter. A generous allowance

(Continued on Page 188)



Fewer Delays at Your Oil Wells

You have less trouble—get more continuous performance right from the start in pumping and pulling your wells, by installing a

Rock Island Pumping Unit

A simple, compact, complete pumping unit under full control from well platform. No friction clutch, no transmission gears—friction transmission eliminates all clashing, jerking or grinding of gears, gives seven speeds forward and seven reverse—changes speed without stopping.

Two sizes—25 and 35 h.p. Heavy duty Waukesha four cylinder motor operates on either natural gas or gasoline. Dixie Magneto with impulse starter, antifriction bearings throughout. Powerful service brake.

Manufactured by Rock Island Plow Co., Rock Island, Ill.

Sold by

C. F. CAMP CO., 14 E. 7th Street, Tulsa, Oklahoma. P. O. Box 289

Knowledge

BACK of every "United" product there is a complete knowledge that makes perfection in every detail possible. It is the "know how" that has been gained from 30 years research work and manufacturing experience.

The design, the material and the construction assure you of maximum value and perfect performance in "United" Refining and Producing Equipment and Supplies.

Send us your inquiries.

United Iron Works

INCORPORATED

KANSAS CITY, MO.

TULSA, OKLAHOMA DALLAS, TEXAS

HAZARD
WIRE ROPE
Nearly eighty years ago HAZARD made the first Wire Rope in America by machinery. Today, Hazard quality is still unsurpassed.

We carry a full stock of Hazard Drilling, Sand and Casing Lines and can give you prompt service.

We Sell Hazard Wire Rope because it's better

LONGHART SUPPLY COMPANY
FORT WORTH

HAZARD WIRE LINES, FARRAR & TREFTS BOILERS
H. & A. BULL ROPES AND GOODYEAR BELTING

SERVICE IN OIL SECURITIES

We are prepared to furnish information regarding Standard Oil and other oil stocks and to give most efficient service to orders in oil securities.

CARL H. PFORZHEIMER & CO.
(Specialists in Standard Oil and Miscellaneous Oil Securities)
25 Broad Street NEW YORK, N. Y.

Massachusetts Report On Cost of Gasoline Waits Federal Plan

BOSTON, Mass., April 18.—Fundamental cause of the recent rises in the price of gasoline is outside of Massachusetts and must be reached by Federal statute, if legislation is necessary to change conditions, is the opinion given by Eugene C. Hultman, chairman of the Special Commission on the Necessaries of Life, in report to the Massachusetts Legislature as required by recent order of that body.

Mr. Hultman adds, for the commission: "The only legislation which the General Court of Massachusetts can pass would be to control as much of the oil industry as exists in this State."

He further says:

"The commission makes no specific recommendations at this time for legislation by the General Court, because it believes that every opportunity should be given to industry to correct economic evils without legislation.

"Furthermore, the commission believes that the outcome of the present extraordinary activities of the Federal Government in regard to the oil industry should be awaited before enacting legislation in Massachusetts. On December 19, 1924, a Federal oil conservation board was created by the President to investigate all phases of the oil industry in order to formulate a national policy for oil conservation. If the Government decides to regulate the amount of crude oil produced, the prices which shall be charged for petroleum products must also be regulated.

"The Attorney-General of the United States has brought suit against many of the larger companies doing business in Massachusetts, alleging that agreements exist which constitute a combination and conspiracy to restrict the production and distribution of gasoline.

Two of the three refineries located in Massachusetts are licensed under these patents. If the Federal Government is successful in its suits elements of competition will be introduced which do not now exist.

"If those at present engaged in the distribution of gasoline in this commonwealth are unable or unwilling to remedy conditions, we may obtain relief in the natural course of business. . . .

"In the last few years conditions in the oil industry have required attention from the Government by investigation and litigation with increasing frequency. The commission is, therefore, of the opinion that if the industry does not "clean its own house" public opinion will demand that conditions in the oil industry be corrected by legislation."

The report goes on to say in analysis of conditions in Massachusetts:

"The commission finds that the retail prices set by the major companies are generally followed closely by the retail dealers in gasoline. The margin taken for the distribution of gasoline in Massachusetts totals about 9 cents a gallon. Retailers receive from 4 cents to 8 cents a gallon, depending upon their source of supply or their ability to secure concessions from the posted tank wagon price; yet the posted retail price of gasoline to the consumer is generally uniform.

"The Commission finds that the recent increases in the retail price of gasoline in Massachusetts during the period under consideration was about 56 per cent; increases in other principal cities of the country are shown in the following table:

City	Retail price (excluding tatx)	Retail price (excluding tax	P.C. of Increase Oct 27, 1924, to Feb., '25
Boston, Mass.	16c	25c	56.3
New York, N. Y....	17c	23c	35.3
Philadelphia, Pa. ..	17c	23c	29.4
Baltimore, Md.	15c	21c	40.0
Washington, D. C...	16c	21c	31.3
Chicago, Ill.	16c	21c	31.3
Detroit, Mich.	15.3c	20.3c	31.6
Cleveland, O.	17c	20.5c	20.6
St. Louis, Mo.	14.4c	19.4c	34.7
Omaha, Neb	13c	18c	38.5

"The commission, from its study and investigation, finds that an increase of 56 per cent in the retail price of gasoline

It Belongs To You

THROUGH the Oil and Gas Journal you and thousands of others keep in touch with every activity of the great Petroleum Industry.

As the "Journal" leads in everything it is natural that it should have the biggest petroleum publication classified section in the world.

It has been helping the men in the entire industry for years. For that reason they have confidence in it, and know what Classified advertising in the "Journal" pays.

There are any number of ways in which you can benefit from the Classified Wants Section. By reading it every week you may find a bargain or opportunity that will help you.

You can use it to buy or sell equipment, royalties, leases, production, or service; it may help you to get a better position, drill a well or locate a good salesman.

There is no limit to the uses to which you may put the Classified Wants Section. It's really your section, because subscribers furnish the "business news" for it.

Whenever you want to buy or sell ANYTHING use the Classified Wants Section of your "Journal." It will help you.

The Oil and Gas Journal
Classified Wants Section "Biggest in America"

The
Neco Pump
(Working Barrel)

At Garber, Okla., one of the leading producing companies reports a saving of 60 to 80% in pulling cost by using Neco Pumps.

Stocked throughout the Mid-Continent field by

Oil Well Supply Co.

Northrup Equipment Co.
Parkersburg, W. Va.

Manufacturers of
Working Barrels
Valves
Steel, Bronze and
Non-corrosive Balls
and Seats

Patented

"CUT OIL"

is a problem in
CHEMISTRY

An "emulsion" represents a condition of a liquid which can be fully, scientifically and economically corrected by use of the chemical process. Use TRET-O-LITE process when you have cut oil and tank bottoms that require treating.

WM. S. BARNICKEL & CO.

St. Louis, Mo.

Tret-O-lite

Reg. U. S. Pat. Off.

which took place in Massachusetts between November 1, 1924, and February 4, 1925, was unjust and excessive.

Discussing Massachusetts' power to regulate and control this commodity, the Commission says:

"In reference to that part of the Order of the General Court requiring this Commission to report such recommendations as in its opinion will remedy any abuses it may find to exist: The oil industry enjoys the same rights and privileges as any private business. However, consumers of gasoline dissatisfied with the price demanded can find no relief by using another commodity, because there is no competing product. Furthermore, the fundamental material of the industry—crude oil—is an irreplaceable natural resource of the greatest importance, to the safety and welfare of the country. At present the consumer is entirely dependent upon the oil industry itself for fair and reasonable treatment."

The conclusion is reached that the people of Massachusetts must look first, for relief, to the Federal Government, after that to the laws of supply and demand and, finally, to efforts to take the power of control of the oil industry through country-wide action.

BELL AND OMAR BIDS GET RED RIVER OUTPUT

WASHINGTON, D. C., April 18.—The Bell Oil & Gas Co., Tulsa, was awarded the contract for the purchase of oil from wells in the Red River bed now being operated by the Government. Contract for the purchase of natural gas gasoline was awarded to the Omar Gasoline Co., Wichita Falls, Tex.

The successful bid of the Bell company provided for a premium of 16 cents per barrel above the posted price of the Prairie Oil & Gas Co., the Texas Pipe Line Co., the Humble Pipe Line Co., and the Magnolia Petroleum Corp. in this district. The successful bid of the Omar Gasoline Co. on natural gas gasoline provides for the payment of 55 per cent of the total marketable gasoline recovered from the gas.

The Red River bed has a daily production amounting to 650 bbls. and a monthly production of about 5¼ gallons per thousand cubic feet of gas.

This oil field was recently transferred from a receivership of the United States Supreme Court to the Interior Department after it had been declared a part of the public domain.

Congress passed a law authorizing the Secretary of the Interior to settle the rights of numerous claimants to leases in the Red River bed. Pending this settlement a number of oil wells on the lands are being operated by the Government, necessitating the disposal of the oil and gas produced.

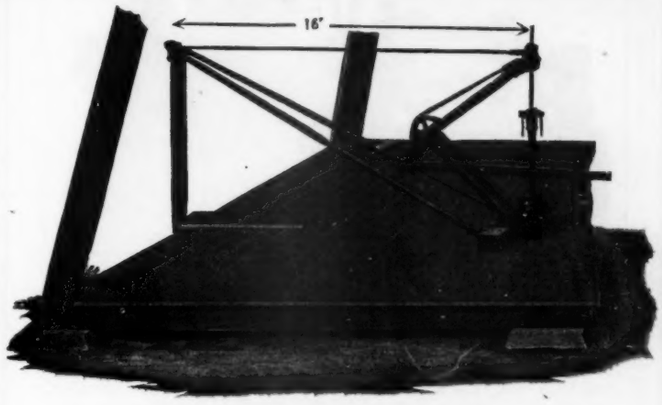
F. A. STUBBS DIES

Frederick A. Stubbs, aged 45, and for 22 years one of the most active oil producers in the northern Oklahoma oil fields, died recently at his home in Denver, Colo., from pneumonia. Early in 1903 he came to Bartlesville, Okla., and later engaged in the oil producing business. A partnership called Stubbs & Lowe assisted in developing the Dewey Field, north of Bartlesville. They were also active in the Nowata and other shallow fields. Incidentally they became interested in the Glen Pool and other developments adjacent to Tulsa from 1909 to 1915.

TEXAS CRUDE TAX APRIL 30

AUSTIN, Tex., April 18.—Payers of the 2 per cent gross production tax on crude oil have until April 30 in which to pay the tax for the quarter ending March 31, without incurring a 10 per cent penalty on the amount of the tax, it was announced in the oil tax division of the Comptroller's Department. Payments are now coming in at a rapid rate and from all indications there will be collected over $1,000,000 for the quarter. Three-fourths of this amount goes to general revenue and the remaining quarter goes to the available school fund.

LIGHTNING
OIL FIELD SUPPLIES
PUMPING POWERS, JACKS, STUFFING BOXES, ETC.



LIGHTNING JACKS

The Jack that takes the place of the Beam Pump

ADVANTAGES:

Simplicity
Wide Range of Adjustment
Special Oiling Features
Lateral Adjustment
Simple to Install
More Oil Pumped

Longest stroke without use of Multiplier

Oil Field Supply Department

KANSAS CITY HAY PRESS CO., Kansas City Mo.

Call for
"IWANA"
HAIR BELT
And Get the Best By Test

BETTER BELT SERVICE

LONGER BELT LIFE

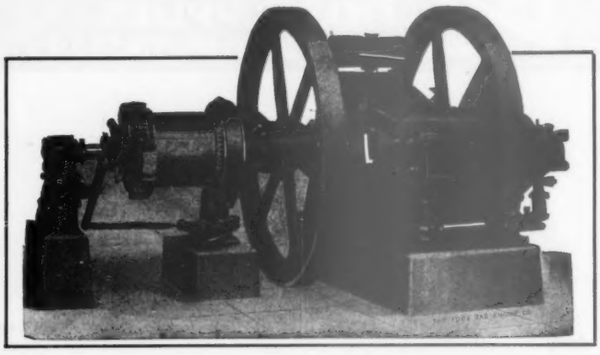
FENWICK-REDDAWAY MFG. CO.

CAMEL'S HAIR, COTTON AND LINEN PRODUCTS

Office and Factory: NEWARK, N. J.

Tulsa Representative: A. F. Campbell, P. O. Box 171

THE Foos



The FOOS Type "OK" Engine Built For Deep Territory Service!

The Foos "OK" has a well-merited reputation for efficiency, economy and dependable service. It is a simply designed, rugged engine that requires little attention, yet delivers steady, smooth continuous power under the most trying conditions.

Equipped with central lubricating system which provides automatic lubrication for about 72 hours continuous run. All parts are completely accessible and can be removed independently. All working parts placed on one side of engine.

Write for Bulletin G-90 which gives you full and complete information.

THE FOOS GAS ENGINE CO., Springfield, Ohio.

For 38 years, manufacturers of high-quality internal combustion engines exclusively. Types for all gas and liquid fuels—sizes up to 750 H. P.

Transcontinental Oil Company

General Offices:

Pittsburgh, Pa.

Refineries at

Boynton, Bristow, Okla., Fort Worth, Tex.

Refineries

Manufacturers Absorption Oil

Lubricating Oil for Gasoline Plants

Branch Sales Offices

Tulsa Muskogee Bristow Fort Worth

GREATER PROGRESS IN NATURAL GASOLINE

(Continued from Page 185)

should always be made for depletion, based if possible on nearby plants.

Anti Knock Property

Everybody is familiar with ethyl gas and its anti-knocking properties. We do not know what causes knocking. In certain fuels the rate of flame propogation jumps to the velocity of detonation and crowds a thin film of gas between the flame and the resisting gas just ahead. This film is dense, and moving at high velocity strikes the cylinder head with the familiar "ping" sound. This is the knock. It does not consist of metal striking metal but as gas striking metal.

Paraffin fuels knock worse than naphthenic or aromatic fuels. Benzol, for instance, is an anti-knock fuel. But most important from the standpoint of natural gasoline, the high end point fuels are wore offenders than those of low end point. Natural gasoline is chiefly composed of paraffin hydrocarbons, except certain California gasolines, but its end point is low. The author has mixed 40 per cent of charcoal natural gasoline of 250 degrees Fahrenheit end point with Mid-Continent naphtha of 430 end point, and obtained an anti-knock fuel. We are safe in saying that natural gasoline because of its low end point has anti-knock properties.

Operating Costs

The natural gasoline industry has a hard time surviving the recent low prices, just the same as the refinery industry. A natural gasoline plant producing 5,000 gallons of gasoline per day, after paying 33⅓ per cent royalty, and charging off depreciation, depletion, taxes, insurances and all necessary items, cannot make gasoline for less than 9 cents per gallon. Most gasoline plants have a smaller capacity than 5,000 gallons per day, hence their costs are greater than this. By far most of the time in the past four years the price at Mid-Continent plants, where most of the natural gasoline is made, has been less than 9 cents per gallon. It was 4 cents per gallon in Texas for a while.

Royalty to Casinghead Owners

For a time natural gasoline prices were so high that gasoline plant operators engaged in frenzied bidding for gasoline rights of casinghead gas. A gross royalty of 50 per cent was common. Gasoline plants cannot stand this. The casinghead gas owner benefits in other ways, largely through increased oil production due to a "vacuum" on his wells. The writer has in mind a careful study over a period of three to seven years which showed that the application of a vacuum had increased the oil recovery 25 per cent.

Some operators say this is simply robbing the oil; that the increase would be eventually obtained anyhow. But this is not true. Ordinary oil recovery methods obtain probably 10 to 30 per cent of the oil in the sand. But a "vacuum" keeps pulling relentlessly on unrecoverable oil. It simply produces a still in the stratum, taking off the light ends long after the well has settled to so called settled production.

Motor Fuels from Natural Gasoline

As already stated natural gasoline enters into practically all motor gasoline. Usually the amount is small varying from 2 up to 15 per cent. However, so-called blends contain more than this quantity, the 68-70 degree Be' grade as much as 45 per cent in the winter time. This grade, say of 437 end point, sells for about the same as gasoline of 58-60 degree Be', and 437 end point. On the other hand a well made blend is a much better fuel, especially for winter use.

Motor gasoline will show a recovery on distillation of 98 per cent or better and a blend 88 to 95 per cent. The latter is a more volatile fuel, hence handling losses will be greater. Just what this handling loss is the writer does not know. He would say very little in the winter time. Against this one must put easier car starting and better car accel-

TANK CARS

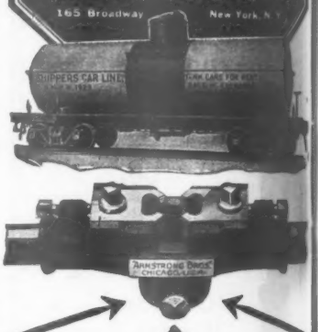
FOR RENT, SALE OR EXCHANGE

Having increased our fleet, we have a good supply of cars, both clean and dirty, for prompt release—various locations—on Long or Short Term Rental.

Wire Your Requirements

SHIPPERS' CAR LINE, INC.

165 Broadway New York, N. Y.



Armstrong Bros.

ADJUSTABLE

Pipe Dies and Stocks

IMPROVED DESIGN

CUT LIKE LATHE TOOLS

Dies are Alloy Tool Steel. Chasers are backed off making them easy cutting and long lasting.

Write for free catalog

ARMSTRONG BROS. TOOL CO.

330 No. Francisco Ave., Chicago, U.S.A.

Assured Beyond Doubt

are the thousands of Producers, Refiners and Marketers who regularly read America's Greatest Petroleum Publication—The Oil and Gas Journal.

Truth
Dignity
Character

BAKER CASING SHOE CO.
Box 264 F Huntington Park Sta. LOS ANGELES, CALIF., and Box 239 F COALINGA, CALIF.
MANUFACTURERS AND DEALERS
Oil Well Specialties for Advanced Methods Practical and Dependable
BAKER
Anchor Wall Packers
Baker Casing Shoes
Bridge Builders
Cement Retainers
Cement Plugs
Clean-Out Bailers
Dump Bailers
Die Nipples (Water Tight)
Die Collars (Tight)
Gas Traps
Hinged Spiders
Heaving Plugs
Pitman Ends
Plain Casing Shoes
Regular Hook Wall Packers
Release Hook Wall Packers
Rotary Bits Baker Types
Rotary Hole Guides
Rotary Shoes
Rotary Tool Joints
Rotary Wall Hooks
Split Shoe Guides
All Supply Houses or Direct
Mid-Continent Representatives
B & A Specialty Company,
404 West First Street,
Tulsa, Oklahoma

WESTERN BANK SUPPLY CO.
Manufacturing Stationers
High-Grade Office Furniture
Filing Cabinets—Safes
Log Books Township Plats All Standard Forms
Lithographing Embossing
Engraving Printing
"THE HOUSE OF QUALITY"
217 West Main St. 4th and Boston
OKLAHOMA CITY TULSA, OKLA.

Capital Abstract & Realty Co.
W. S. Bell L. B. Norton
J. F. Patterson
Okmulgee, Okla.

DAWSON TOWEL SUPPLY
Aprons, Towels, Jackets for Rent
Towel Service for Office $1.50 Mo.
Phone 9985 Tulsa, Okla.

Dickey-Ashby-Fountain Co.
General Insurance
Derricks, Tanks and Contents Insured
1114 Atlas Life Bldg., Tulsa, Okla.

GEO. W. HENRY, Printer
"Better Printing"
Phone 2-0238
510 S. Elgin Tulsa, Okla.

LAFE SPEER ABSTRACT CO.
General Abstractors
J. A. Boyd, Pres. and Mgr.
11 S. Park St. Sapulpa, Okla.

Place your order for Ice with the
TULSA ICE CO.
3-0012, 4 N. Detroit, Tulsa, Okla.

eration with the blended grade. Crank case dilution would be less because more of the heavy ends would evaporate along with the more volatile portions.

Unfortunately we have not yet accurately measured the "goodness" of gasoline in concrete terms of its use in automobile cylinders. Nor have blends been standardized the same as New Navy gasoline for instance. Further, cars keep changing in design, especially with reference to the ability to handle heavy fuels, due to hot spots, heated manifolds, etc. Some cars, in the summer time at least, will not handle the more volatile blends. Blends invariably have a lower initial boiling point than ordinary motor gasoline.

About the best we can say is that the material we call motor gasoline of 100 to 135 degrees Fahrenheit initial boiling point and up to 437 degrees Fahrenheit end point makes a satisfactory motor fuel for cars as they are designed today. What might be called a super-fuel has the following characteristics. It is an export gasoline, probably for aeroplane use abroad. Its characteristics follow:

Gravity	74°
Initial	80°
Per Cent	Be.
5	114
10	117
20	129
30	139
40	150
50	160
60	177
70	193
80	214
90	249
95	310
98	355
1%	Residue

This gasoline represents the very cream of the crude oil with a little natural gasoline added to lower the initial boiling point. Some so-called straight run gasolines have even a lower end point than this one.

Between these high grade products and ordinary motor gasoline there is a wide range of products sold on the market, with no way of valuating their worth, except approximately. There are needed exhaustive tests, preferably by a Government agency, using various types of motor engines, under closely controlled conditions, to make comparative studies of different gasoline fuels. These tests would have to be perpetual, for gasoline and motor engines change with the years.

Future Trend

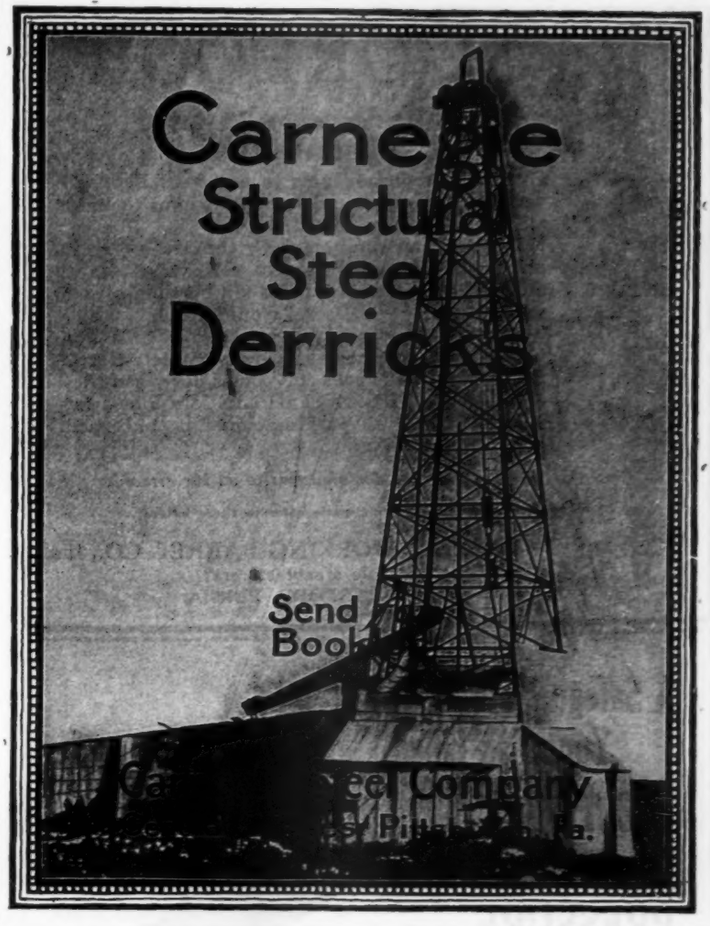
The writer has attempted to show the sequence of important developments in the natural gasoline industry. The next 5 or 10 or 20 years will show even greater progress. This is indisqutable so long as natural gasoline is in demand. There is more money and more talent in the industry than ever before. Both will increase.

MOTORS NECESSARY TO GERMAN GROWTH

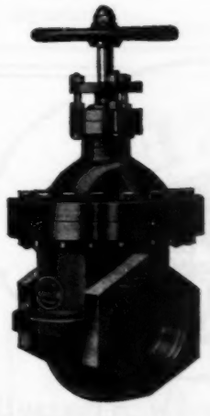
Germany's economic life will remain in its present "patriarchal condition" until it effects a mass production of motor cars and goes about its reconstruction problems in a thoroughly modern way, according to F. J. Popp, director of the Bavarian Motor Works.

In Germany's lack of automobiles, Popp sees the biggest handicap to economic and industrial progress which the nation faces, and he urges an abandonment of the archaic idea that a motor car is a luxury and should bear a tax of 15 per cent.

The mass production of motor cars can never attain the same proportions in Europe that it does in America, Popp declares. He estimates that only persons in Germany who earn 2,000 marks, or about $500 a month, can afford cars, and says there are probably 1,000,000 Germans who have this much income. On this basis he estimates the annual yearly production of cars for local use at about 200,000. At present Germany is producing about 30,000 motor cars a year.



TESTS AND EXPERIENCE



LUDLOW DOUBLE GATE VALVES are the result of years and years of tests made under actual working conditions. That is the reason LUDLOW VALVES render dependable service under any and all conditions. You cannot make a mistake with Ludlow Valves. Why experiment?

THE LUDLOW VALVE MFG. CO.
(Established 1866)
Factory: Troy, N. Y.
Branch Offices: Kansas City, Mo.; Chicago, Ill.; Pittsburgh, Pa.; Boston, Mass.

McGREGOR

"The Working Barrel That Works"

Over fifty thousand now in use from Pennsylvania to Argentine and from Oklahoma to India wherever oil is produced.

No Barrel can compete with the McGregor in price. It comes with the barrels, valves, valve stem all complete at a price slightly more than what the old style Barrel would cost.

The only pulling done when you have a McGregor in use is the rods as the complete Barrel is fastened to the rods and comes out when they are pulled. TUBING PULLING is done away with as far as the Working Barrel is concerned. Use "Mac" Ball and Seat.

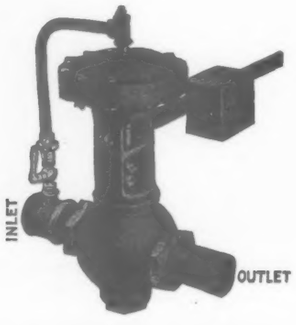
See your dealer or write us for circular

In ordering parts refer to these letters

McGREGOR WORKING BARREL CO., Inc.
Sole Manufacturers
BRADFORD, PENNA.

A Safeguard for Your Gas Lines

FULTON BACK PRESSURE REGULATOR



Set the Fulton Back or Check Pressure Regulator at the desired pressure, and it automatically guards against the gas pressure falling below this predetermined pressure, maintains given pressure at gas wells. So made that friction is reduced and a quick response to the slightest change of pressure is insured.

Write us for folder giving full information and prices

THE CHAPLIN-FULTON MFG. CO.
30 Penn Avenue Pittsburgh, Pa.

PIONEER
TANK & BOILER Co.
TULSA-OKLA

Oil Refinery Tankage
CRUDE and STEAM STILLS
CONDENSER BOXES
AGITATORS, TOWERS
HEAT EXCHANGERS
SEPARATORS
STORAGE and PRESSURE TANKS
ETC.

Steel Warehouse Dept.
STEEL PLATES, SHEETS
ANGLES, BARS, BEAMS
CHANNELS, RIVETS
BOILER TUBES
FLOOR PLATES
TANK FLANGES
STAY BOLTS
SMITH COAL and COKE

Immediate Shipments from Tulsa Stock
PHONE O-1146 OR WRITE BOX 1926.

Detailed Operations In Gulf Coast Fields For Month of March

WELLS COMPLETED

BATSON

Condon, Ada Belle Oil 92	10
Condon, Ada Belle Oil, 90	sw
Davis, Ada Belle Oil 91	10
Davis, Ada Belle Oil 82,	10
Wing, Gulf Production Co. 101	10
Fee, Paraffin Oil 39	5
Melhome, S. R. Buchanan 81	10
Lone Acre, East Batson Oil 9	sw
Wells completed	8
Production	55
Salt water	2

BLUE RIDGE

Robinson, The Texas Co. 12 (wo)	1200
Well completed	1
Production	1200

EDGERLY

Lillard, G. W. Gray 11	sw
Completed and salt water	1

GOOSE CREEK

Wright, Sun Co. 5 (wo)	15
Bryan, Copeland Oil 5	sw
Smith, Humble Oil & Ref. 60	gas
Hogg Island, Humble Oil & Ref. 1	sw
J. Galliard, Gulf Prod. 17 (wo)	200
Hirsch, Gulf. Prod. 1	200
Wright, Gulf Prod. 4-A	abd
Wright, Southern Explo. Co. 7	75
J. Galliard, Gulf Prod. 18	50
Smith, Humble Oil & Ref. 56	300
Wright, Southern Explo. Co. 9	100
Wright, Southern Explo. Co. 2	abd
Wright, Southern Explo. Co. 10	250
Busch, Hisgen Pet. 2	abd
Duke, Ince Prod. 2	150
Wells completed	16
Production	1340
Abandoned and salt water	5
Gas	1

HUMBLE

House, The Texas Co., 8 (wo)	2
Coulter, Vance Prod. 1	abd
Wells completed and dry	2

HULL POOL

Millam, Mecom Oil 8	100
Dolbear, Republic Prod.-Houston Oil 56 (wo)	50
Dolbear, Republic Prod.-Houston Oil 97 (wo)	100
Dolbear, Republic Prod.-Houston Oil 101	120
Dolbear, Republic Prod.-Houston Oil 102	75
Dolbear, Republic Prod. Houston Oil 103	75
Dolbear, Republic Prod.-Houston Oil 104	400
Phoenix, Gulf Prod. Co. 14 (wo)	300
Phoenix, Gulf Prod. Co. 16 (wo)	250
Phoenix, Gulf Prod. Co. 30 dd	1500
Phoenix, Gulf Prod. 47	600
Phoenix, Gulf Prod. Co. 46	2000
Merchant, Humble Oil Ref. 1	4500
Stengler, Yount-Lee Oil 6	3500
Gentry, Humble Oil & Ref. 10	sw
Taylor, Higgins Oil & Fuel 4	90
Ray, W. B. Flynn 3	60
Fee, The Texas Co. 1	5000
Tompson, Monarch Oil & Ref. Co. 4	sw
Barngrover, Houston Prod. 11	75
Scarborough, Gulf Prod. 15	200
Baldwin, Gulf. Prod. 12	4000
Phoenix, Gulf Prod. 45	1000
Wells completed	21
Production	23885
Dry and salt water	2

JENNINGS

Fee, Coastal Fuel Oil 38	250
Producers, Hines et al 9 (wo)	20
——, Barton & Myers 11	sw
Wells completed	3
Production	270
Salt water	1

MARKHAM

Gray, Rycade Pet. 2	sw
Well completed and salt water	1

ORANGE

Consolidated, Gulf Prod. 2 sw	abd
Kishi-Lang, Gulf Prod. 8	2500
Hager-Moore, Gulf Prod. 4	600
Carbello, Edgerly Pet. 3	45
Chesson, Orange Pet. 8	200
Winifree, Orange Pet. 9	50
McGuire, Kishi Dev. 5	350
Granger, Sinclair Oil & Gas 4	75
Chesson, Mutual Oil 7 dd	120
Wells completed	9
Production	3940
Abandoned	1

PIERCE JUNCTION

Cain, Snowden & McSweeney 8 (wo)	250
Wells completed	1
Production	250

SPINDLETOP

Gladys, Williams Oil 1	8
Lawrence, Ellis & Lancaster 1	9
Gladys, Gulf Prod. 149	75
Gladys, Gulf Prod. 211	225
Gladys, Gulf Prod. 212	140
White, Baker Oil 11	20
McFadden, Steel Oil 7	100
National, Unity Oil 43	20
Wells completed	8
Production	583

SARATOGA

Texas, Sun Co. 58	3
BBBC, Gulf Prod. 33	25
Lewis, Pazzi Oil 6	sw
Hoods, Skinner Oil 1	20
Peggy, Prague Oil 1	15
Bryant, Rio Bravo Oil 3	700
Wells completed	6
Production	768
Abandoned	1

SOUR LAKE

Baw, E., Sun Co. 61	12
Fee, Peveto Oil 9	5
Fee, Gilbert Oil 96	7
Fee, Minor Oil 74	7
Fee, Minor Oil 74½	5
Lynn, Yount-Lee Oil 5	325

For AMBULANCE Service
PHONE 3-7111
MARTIN FLEMING UNDERTAKING CO.
Prompt and Efficient Service
110 W. Ninth Tulsa, Okla.

Northern Oil Information Bureau
Shelby, Montana
Complete weekly drilling and operating report of Kevin-Sunburst field mailed to any address, $10 for four reports. Maps and logs for sale. Best of references. We maintain geological, land and field deparments, all in expert hands.

NEW OLNEY DISTRICT MAP
JUST OUT
Covers an area in Archer, Young, Throckmarton and Baylor Counties, Texas, approximately 21 miles east and west and 12½ miles north and south and includes the Swastika, Harmel, Ragle, Carey and Peters pools. Scale, 2000 feet 1 inch. On cloth, $7.50; paper, $4.50.
Write for catalog of other maps.
HEYDRICK MAPPING CO.
Wichita Falls, Texas

Clive M. Alexander
CONSULTING ENGINEER
Petroleum Refineries and Natural Gasoline Plants
502 Cosden Bldg.
TULSA, OKLA.

VENEZUELA OIL MAPS
Detailed Maps of Lake Maracaibo Basin Region
Prices on Application
Compania Cartografica Venezolana
25 Broadway, New York, Room 951

F. B. Porter, B. S., Ch. E., President
R. H. Fash, B. S., Vice President
THE FORT WORTH LABORATORIES
Field gas testing. Analyses of oil field brines, gas, minerals and oil
823½ Monroe St., Fort Worth, Texas

WRITE FOR OUR FREE BOOK ON
PATENTS
MUNN & CO.
361 Woolworth Building New York
514 Scientific American Bldg., Washington, D. C.
402 Tower Building Chicago, Ill.
366 Hobart Building San Francisco, Cal.

PATENTS OBTAINED FOR INVENTORS
JACK A. SCHLEY
U.S. PATENT ATTORNEY
305 INTERURBAN BLDG., DALLAS

W. G. MATTESON
CONSULTING GEOLOGIST
Specialist examinations and appraisals Mid-Continent and Gulf Coast Oil Properties
814 Texas State Bank Bldg., Fort Worth, Texas
Box 471, G. P. O., New York City

F. JULIUS FOHS
OIL GEOLOGIST
1330 Kirby Bldg., Dallas, Tex.
818 Kennedy Bldg., Tulsa, Okla.
and 60 Broadway, New York
Cables: Fohsoil
Codes: Bentley & McNeil
No professional work undertaken

William H. Foster W. A. Reiter
FOSTER & REITER
CONSULTING GEOLOGISTS
19th Floor, Magnolia Bldg., Dallas
Atlas Life Bldg., Tulsa

WALTER STALDER
OIL GEOLOGIST
Crocker Bldg.,
SAN FRANCISCO, CALIF.

FRANK C. GREENE
CONSULTING GEOLOGIST
Exchange Natl. Bank Bldg.,
Tulsa, Okla.
Office Phone 2-4589
Residence Phone 8516

V. H. McNUTT
CONSULTING GEOLOGIST AND APPRAISER
Specializing in Northern Oklahoma and Southern Kansas Fields
TULSA, OKLA.
Rooms 404-405 Commercial Bldg.

C. W. WASHBURNE
GEOLOGIST
1 Rector Street New York

E. J. LONGYEAR CO.
MINING ENGINEERS AND GEOLOGISTS
Diamond Core Drill Manufacturers
Diamond Drilling Contractors
MINNEAPOLIS, MINN.

EDWIN B. HOPKINS
CONSULTING GEOLOGIST
25 Broadway
NEW YORK

W. L. GOMORY
CHEMICAL ENGINEER
Consulting Petroleum Technologist
INVENTOR GOMORY CRACKING PROCESS
Licenses Solicited
Refinery Design
Peoples Gas Building Chicago

JOHN B. KERR
PETROLEUM GEOLOGIST
Phone Garfield 4734
691 BALBOA BLDG.
SAN FRANCISCO, CALIF.

HARRY F. WRIGHT
GEOLOGIST
Geological Examinations
Valuations for Tax and Financing
[illegible] So. Cheyenne TULSA

Shoestring, Minor Oil 28 6

Wells completed 7
Production 867

SOUTH LIBERTY

Mecom, Gulf Prod. 5 50
Harrison, Oxford Oil 1 600
Harrison, Oxford Oil-Navarro Oil 2....2500
Barrett, Vacuum Oil 1 3000
Barrett, Vacumm Oil 2 2500
Barrett, Vacuum Oil 3 2000
E. Pickett, Bashara Oil 1 ..... sw
Harrison, Monarch Oil & Ref. 1 3000
Harrison, Monarch Oil & Ref. 2 2000
Chambers, Humble Oil & Ref. 1 1800
Rivere, Humble Oil & Ref. 2 ..... dry
Pickett, Humble Oil & Ref. 1 ..... sw
Pickett, Humble Oil & Ref. 2 1500
Vandeventer, Gulf Prod. 1 4000
Barrett, Gulf Prod. 1 100
Hammon, Gulf Prod. 1 ..... abd
Monroe, The Texas Co. 1 ..... abd
Pickett, Hope Oil 1 1500
Andrews, Long Oil 1 3000
Brown, M. Bennett 1 3000
Pickett, M. Bennett 3 3000

Wells completed 20
Production 33290
Abandoned 3

VINTON

Gray, Vinton Pet. 1 ..... sw
Rescue, Vinton Pet. 6 1000
Gray, McLean 5 ..... abd
Gray, The Texas Co. 1-B ..... abd
Gulf, Gulf Ref. 61 400
Lyons, Just Oil & Ref. 1 100

Wells completed 6
Production 1500
Abandoned and salt water 3

WEST COLUMBIA

Pipkin-Lee, Humble Oil & Ref. 16 ..... abd
Pipkin-Lee, Humble Oil & Ref. 17 ..... abd
McGregor, Hyde Prod. 8 10
McGregor, Hyde Prod. 1 ..... abd

Wells completed 4
Production 10
Abandoned 3

MISCELLANEOUS GULF COAST

Jefferson County—
Neches, The Texas Co. 1 ..... abd
Bighill, Houston Oil 1 ..... abd
Bighill, States, Houston Oil 5 ..... abd
Fort Bend County—
Davis, Pathfinders Oil 2 ..... abd
Galveston County—
High Island, Sun Co. 11 50
Brazoria County—
Dunnmore & Co., 1 Sayle ..... abd

Wells completed 6
Production 50
Abandoned 5

SOUTHWEST FIELDS
LULING

Fields, Brownlee et al 1 400
Haveman, United North & South 8 100

Wells completed 2
Production 500

LAREDO DISTRICTS

Los Ojulas, Wheatley Oil 14 50
Los Ojulas, Caroline-Texas 1 ..... sw
Los Ojulas, Caroline-Texas 7 100
——, U. S. O. & G. 1 ..... gas

Wells completed 4
Production 150
Salt water 1
Gas 1

SOMERSET

Klemcke, Klemcke Oil 9 10
Ernest——, Grayburg Oil 20 10

Wells completed 2
Production 20

ROCKDALE-MINERVA

Coulter, Black et al 2 20

Well completed 1
Production 20

JIM HOGG COUNTY

Holbein, Plateau-T. P. C. & O. 1 500
Holbein, Plateau-T. P. C. & O. 2 50
Holbein, Plateau-T. P. C. & O. 3 ..... gas
Martinez, Henne, Winch & Farris 7.... 225
Martinez, Henne, Winch & Farris 9.... 200
Martinez, Henne, Winch & Farris 10... 200
Thompson, Magnolia Pet. 3 150
Helbein, Witherspoon Oil 4 600
Helbein, Witherspoon Oil 5 300
——, Elliott & T. P. Co. 1 ..... gas
Martinez, O. W. Killiam 3 300
Martinez, Plateau Oil & Gas 2 500
Martinez, Plateau Oil & Gas 3 ..... gas
Martinez, Texo Oil 2 200
Holbein, Kiselman & St. Albans 2..... 300
Holbein, Kiselman & St. Albans 4 200

Wells completed 16
Production 3725
Gas 3

MISCELLANEOUS (SOUTHWEST)
CALDWELL COUNTY

Story & Lefever 1 40
Callahan, United North & South 1 10
Beaty, Gulf Prod. 1 125

FAYETTE COUNTY

Martan, Dixie Oil 1 ..... abd

Wells completed 175
Abandoned 1

RIGS AND DRILLING WELLS

BATSON
Rigs

Fee, Acorn Oil 55.

Drilling

Hodges, Anderson & Munson 2.
Lone Acre, East Batson Oil 10.
Davis, Ada Belle Oil 93.
Milhome, S. R. Buchanan 82.
Rigs, 1; wells drilling, 4; total, 5.

BLUE RIDGE
Drilling

Invincible, Gulf Prod. 3.
Beverly, Gulf Prod. 10.
Luscher, Gulf Prod. 8.
Wells drilling, 3.

BARBER HILL
Drilling

Collier, S. J. Hindman 1.

BIG CREEK
Wells Drilling

Lingue, The Texas Co. 1.
Davis, Gulf Prod. 17, 18, 19, 20.
Wheat, Gulf Prod. 9.
Wells drilling, 6.

A Good Sucker Rod like JONES FOR INSTANCE!
Is a neccessity to LOWER COSTS
S·M·JONES CO.
TOLEDO OHIO

ELECTRIC STEEL CASTINGS

Sterling Quality Castings
Meet All Oil Industry Requirements

"FOR STERLING WEAR USE STERLING CASTINGS"

Sterling Steel Co.
East St. Louis, Ill.

Tulsa Office:
308 S. Olympia St.

Dallas Office:
815 S. Ervay St.

ROSS-MEEHAN FOUNDRIES

Manufacturers

Electric Steel Castings, Certified Malleable
Iron Castings, and Gray Iron Castings
For
Oil Producers and Refineries
"Meehanite Metal" Castings
River Clamps a Specialty

CHATTANOOGA, TENNESSEE, U. S. A.

Reading 400 Pound WSP Steel Gate Valve

Twelve special points in design make for longer life and better operation of Reading Steel Globe Valves. Ask for illustrated booklet.

Reading Steel Casting Co., *Inc.*
Reading Valves and Fittings Division
Bridgeport, Connecticut
Offices and Warehouses in Principal Cities

READING *for* steel
PRATT & CADY *for* iron *and* bronze
specializing for quality valves and fittings

STEEL

for Immediate Shipment from Stock

Bars, Plates, Rivets, Tool Steel, Shapes, Sheets, Bolts, Welding Rods, Structurals, Tubes, Wire, Concrete Reinforcing, Rails, Pipe, Turnbuckles, Small Tools, Machine Tools, etc.

Write for Ryerson Journal and Stock List

JOSEPH T. RYERSON & SON INC.

CHICAGO ST. LOUIS CINCINNATI

TULSA OFFICE—418 ATLAS LIFE BLDG. HOUSTON OFFICE—220 MAIN ST.

DETROIT BUFFALO NEW YORK

FOGGAN SAFETIES are extensively used by leading operators because they have proved to meet their requirements in every way.

The quick action locking device is what makes the FOGGAN ELEVATOR the speediest for handling rods, the elevator being operated wholly and quickly with one hand. It's safe and look at the time saved.

The FOGGAN Rod Elevator is constructed throughout of DROP FORGED STEEL, which gives it very high pulling test, nearly 30,000 pounds.

Upon request we will gladly furnish addresses of operators who without a doubt will gladly tell you their experience with Foggan Elevators.

Order a trial set today from your dealer, if he fails to supply you, order direct.

Manufactured by GEO. N. FOGGAN, Pleasantville, Pa.

GOULDS

FOR ALL PIPE LINE AND REFINERY SERVICES

BULLETINS ON REQUEST

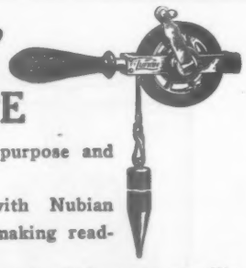
THE GOULDS MANUFACTURING COMPANY

Seneca Falls, N. Y.

Branches or Agencies in All Principal Cities

PUMPS

LUFKIN "Atlas" GAUGING TAPE



By far the world's best tape for this purpose and the only one specially designed for it.

Extra heavy ½ inch Steel Line with Nubian Finish and *Instantaneous* Readings, making reading easy, rapid and accurate.

Lock handle Frame, also extra sturdy and winds tape speedily. Practical 18 oz. bob.

Send for Catalogue

"Tapes and Rules For The Oil Fields."

TAPES FOR GAUGING, STRAPPING AND GENERAL WORK

THE LUFKIN RULE CO. SAGINAW, MICH.

New York Windsor, Ont.

EDGERLY
Wells Drilling
Hunter, Roxana Pet. 1.
Bright-Penn, Gulf Refg. 25 (dd.)
Lillian, G. W. Gray 11 (dd).
Wells drilling, 3.

GOOSE CREEK
Rigs
Wright, Southern Exploration 11.
Wright, Gulf Prod. 9-A (wo.)
Smith, Humble Oil & Ref. Co. 62.
Scorrega, Inca Prod. 1.
Wells Drilling
Galliard Fee, Gulf Prod. 17.
State Law, Gulf Prod. 32.
Chapman-Bryan, Gulf Prod. 9.
Paddock, Gulf Prod. 3.
Busch, Gulf Prod. 2.
Galliard, Gulf Prod. 10-C.
Hog Island, Humble Oil & Ref. 1.
Smith, Humble Oil & Ref. 61.
Galliard, Gulf Coast 31.
Wright, Sun Co. 2, 5.
Beaumont, Gulf Prod. 30.
Rigs, 4; wells drilling, 12; total, 16.

HUMBLE
Rigs
Cherry, Long & Co. 1.
Wells Drilling
Bissonett, Deering et al 2.
Moonshine, Mairl Bros. 3.
Invincible, Martin et al 21.
Koehler, Martin et al 1 (sd.)
Rigs, 1; wells drilling, 4; total, 5.

HULL
Rigs
Dolbear, Republic Prod.-Houston Oil 111.
Hannah, The Texas Co. 3.
Hannah, Texas-Vacuum Oil, joint, 5.
Merchant, Yount-Lee Oil 11.
Taylor, Houston Prod. 9.
Scarborough, Gulf Prod. 15 (dd.)
Phoenix, Gulf Prod. 50, 51.
Morris-Phillips, Gulf Prod. 21.
J. C. Baldwin, Gulf Prod. 11, 13.
Wells Drilling
Dolbear, Republic-Houston Oil, joint, 106, 107, 108, 109, 110.
Taylor, Higgins Oil & Fuel Co. 6.
Hannah, The Texas Co. 2.
Stengler, Yount-Lee Oil 5.
Phoenix, Gulf Prod. 48, 49.
Morris-Phillips, Gulf Prod. 20.
Hannah, Gulf Prod. 17.
Guidry, Humble Oil & Ref. 16, 10.
Merchant, Humble Oil & Ref. 2.
Hannah, Humble Oil & Ref. 2.
Wheelock, Eagle Point Oil 3.
Barngrover, Empire Gas & Fuel 16.
Taylor, Houston Prod. 8, 10.
Merchant, Houston Prod. 4.
Mecom, Mecom Oil 9.
Republic, Higgins Oil & Fuel 3 (wo).
Rigs, 11; wells drilling, 22; total, 33.

JENNINGS
Rigs
J. C., Gulf Ref. 35.
Wells Drilling
Truschell, Foxman Oil 1.
Rigs, 1; well drilling 1; total, 2.

MARKHAM
Rigs
Cherry, Powers & McCarthy.
Drilling
Gray Rycade Petroleum 2.
Rigs, 1; drilling, 1.; total, 2.

ORANGE
Rigs
Chesson, Mutual Oil, 14.
Kishi-Lang, Gulf Prod. 10.
Drilling
Winfree fee, Gulf Prod. 1.
Hager-Moore, Gulf Prod. 4.
M. Granger, Gulf Prod. 1.
Chesson, Gulf Prod. 4.
Hager fee, Gulf Prod. 17.
Carbello, Edgerly Pet. 2.
Jackson, Supreme Oil Co. 1.
Jackson, Supreme Oil Co. 6.
Gunstream, Sun Co. 6.
Brown, Sun Co. 3.
McLean, Brownie Babbittee 4 d. d.
Chesson, Humble Oil Refg. 9-B, 10, 21.
Winifree, Humble Oil & Refg. 11.
Chesson, Mutual Oil, 4, 7.
Cow Bayou, Rycade Pet. 5-A, 3B (dd.)
Moore, Atlantic Oil Prod. 3.
Granger, Monarch Oil & Ref. 4 a d.
Rigs, 2; drilling, 20; total, 22.

PIERCE JUNCTION
Rigs
Howe, H. R, Cullen 4.
Drilling
Cain, McSweeney & Snowden 8 (wo.)
Rigs, 1; drilling, 1; total, 2.

SPINDLETOP
Rigs
Higgins, Wilson & Broach 47.
Drilling
Gladys, Gulf Prod. 213.
McFadden, Stella Oil 8.
Rigs, 1; drilling, 2; total, 3.

SARATOGA
Rigs
Parrish Yaunt, Lee Oil 1.
Fountain, Rio Bravo Oil 1, 2.
Wells, Gulf Prod. 1.
Drilling
Bryant, Rio Bravo 4.
Rigs, 4; drilling, 1; total, 5.

SOUR LAKE
Fee, Gilbert Oil, 97.
Drilling
Tarver, Gulf Prod. 27.
Bashara, McNamara Oil 12.
Herbert, Humble Oil & Ref. 23.
Carpenter, J. S. Jackson, tr 1.
Rogers, Barkley Oil 3.
Jackson, Thais Oil 1.
Rigs, 1; drilling, 6; total, 7.

U. S. SELLS TWO TANKERS

WASHINGTON, D. C., April 18.—Sale of two Government vessels was announced of the Emergency Fleet Corp. The steel tanker Bethelridge, 10,254 dead weight tons, 7,366 gross tons, was sold to Clifford D. Mallory of New York for a cash consideration of $292,620 and an agreement to install a reciprocating engine, and the cylindrical tanker Hisko, 8,900 dead weight, was sold to Walker & Daly of New York for $45,920.

JOHN L. RICH
PETROLEUM GEOLOGIST
OTTAWA, KANSAS

L. G. Huntley Stirling Huntley
HUNTLEY & HUNTLEY
PETROLEUM GEOLOGISTS AND ENGINEERS
Frick Building PITTSBURGH, PA.

FREDERICK G. CLAPP
Consulting Geologist and Petroleum Engineer
30 Church St., New York City
11 Castlereagh St., Room 312 Sydney, N. S. W.

JOSEPH L. ADLER
CONSULTING GEOLOGIST
DENVER, COLO.
1115 First National Bank Bldg.

Robert H. Wood Virgil O. Wood
WOOD & WOOD
GEOLOGISTS AND PETROLEUM ENGINEERS
Phone 2-1725
302 Commercial Bldg.
TULSA, OKLA.

CARL B. ANDERSON
GEOLOGIST AND PETROLEUM ENGINEER
804 Kennedy Bldg.
TULSA, OKLA.

CHARLES T. KIRK
CONSULTING GEOLOGIST
American and Foreign Fields
Phones 2-2821—2-9504
Suite 523 Mayo Bldg.
TULSA, OKLA.

Appraisals Investigations
SAMUEL J. CAUDILL
PETROLEUM ENGINEERS
TAX COUNSELLORS
Tulsa 1014 Atlas Bldg. Los Angeles 433 Security Bldg.

Wilbur E. Brown G. Thomsen, Jr.
BROWN & THOMSEN
GEOLOGISTS
419 West Grand Ave.
OKLAHOMA CITY, OKLA.

H. H. MESSIMER
MACHINE MADE TANK TABLES
ABSOLUTE ACCURACY
P. O. Box 257 104 Mid-Co Bldg.
Phone 2-4909—Tulsa, Okla.

ROBERT W. CLARK
CONSULTING GEOLOGIST AND APPRAISER
Depletion and Reserves for Income Tax
217 Commerce Bldg.
OKMULGEE, OKLA.

BROKAW, DIXON, GARNER & McKEE
GEOLOGISTS
PETROLEUM ENGINEERS
Examinations, Appraisals
Estimates of Oil Reserves
120 Broadway New York

Amil A. Anderson Payton W. Anderson
ANDERSON & ANDERSON
Mining Engineers and Petroleum Geologists
304 Bitting Building
Wichita, Kansas
Telephone Market 2887

ROBERT W. HUNT CO.
Inspecting and Testing Engineers
Inspection of Oil Line Pipe, Oil Well Casing, Tanks, Drums and Barrels
Inspection During Manufacture
Resident Inspectors at Pipe and Steel Mills
2200 Insurance Exch., Chicago

H. H. HOOD
PETROLEUM ENGINEER AND GEOLOGIST
Explorations, Surveys, Appraisals, Audits, Consultations, Management
1319 Chemical Bldg., St. Louis, Mo.
1839 McCormick Bldg., Chicago

IRVINE E. STEWART
GEOLOGIST
Great Falls, Montana
421 Ford Building
Denver, Colorado
926 Patterson Building

HEATH M. ROBINSON
GEOLOGIST
804 American Exchange Bank Bldg.
DALLAS, TEXAS
Telephone X2738

GEO. C. MATSON
GEOLOGIST
2-2049—Phones—2-1833
408 Cosden Bldg. Tulsa, Okla.

Frank A. Herald John M. Herald
HERALD BROTHERS
GEOLOGISTS
PETROLEUM ENGINEERS
308 Cosden Bldg. Phone 3-8711
TULSA, OKLAHOMA

JAMES O. LEWIS
PETROLEUM ENGINEER AND GEOLOGIST
724 Kennedy Bldg. Tulsa, Okla.

DEWITT T. RING
PETROLEUM GEOLOGIST
El Dorado, Ark.
917 New Daniel Bldg. Tulsa, Okla.

H. B. GOODRICH
PETROLEUM GEOLOGIST-ENGINEER
Phone 2-9268—2-8278
1007 Kennedy Building Tulsa, Okla

GASOLINE TAX VOID BUT REFUND PROBLEM

BUTTE, Mont., April 18.—The State gasoline tax which has been in force in Montana two years has ended in a legal tangle which is expected to cause much trouble for the State officials. The State supreme court held that the whole tax law was unconstitutional and as $1,200,000 has been collected the past two year, the State board of equalization, which handled this sum, is in a quandary as to what can be done if the taxpayers demand their money back.

This decision of the supreme court resulted from a case brought by the State against the Sunburst Refining Co., which firm refused to pay the tax and also refused to make out the return called for in the law. The Sunburst firm has won a decision which is expected to carry much weight for the oil companies of Montana and the whole Rocky Mountain region.

The court's decision was based on the fact that the law as passed by the legislature, permitted taxation at the refinery where it was made, at the wholesale plant and at the filling station where it reached the ultimate consumer. The court also found considerable objection to the law in that there was no provision regarding the shipment of gasoline stocks from other states into Montana in competition with the home product and no proviso for taxing such imported gasoline. The court held that through this action, the law was discriminative and that it acted directly against the Montana refiner and dealer in this commodity.

PIPE LINE UNDER WAY FOR WICHITA COMPANY

WICHITA, Kan., April 18.—C. W. Sears, president of the Larutan Fuel Co., the new pipe line company which is to furnish industrial natural gas to Wichita, says the work on the new pipe line is proceeding rapidly. The line has already been built across the most difficult part, the Chikaskia River, and the ditching machines are busy.

The officers of the new company are C. W. Sears, president; H. C. Bretschneider, vice president; Sumner Cottingham, vice president; D. E. Hoover, treasurer; A. C. Fletcher, secretary.

Mr. Sears has opened offices and has taken active management of the company affairs. At present Mr. Sears is assistant general manager of the East Ohio Gas Co. at Cleveland, Ohio. Mr. Bratschneider is vice president of the Midwest Refining Co., of Denver. Mr. Cottingham is treasurer of the Essex Coal Co., at Columbus, Ohio, and has been engaged in the gas and oil business in the East. He is also interested in Kay County, Oklahoma, and contemplates development of his property in the near future.

Mr. Helper is treasurer of the Hope Engineering & Supply Co., of Mt. Vernon, and has been actively engaged in the oil and natural gas business. Mr. Fletcher is general manager of the Western States Land & Development Co., at Deer Creek. Carl B. Haun, a director of the Larutan Co., with his partner, M. L. Harris, both of Blackwell, assisted Mr. Fletcher in the undertaking by combining their gas holdings in several Oklahoma Fields with those of the Western States.

READ THE
Classified Wants
Pages 160-161-162
DO IT NOW
YOU MAY MISS A BARGAIN

WILLIAMS
"VULCAN"
BACK-UP WRENCH
An ideal Back-Up Tongs — handle short and stubby—"Proof-tested" chain of extra size provides greater bearing on pipe or casing. *Literature?*
J. H. WILLIAMS & CO.
"The Wrench People"
New York BUFFALO Chicago

STEEL CASTINGS
FOR THE OIL INDUSTRY
SERVICE QUALITY
Send us your blueprints
We meet your requirements
GEO. H. SMITH STEEL CASTING CO.
500 CLINTON ST. MILWAUKEE, WIS.
CHICAGO OFFICE—549 W. WASHINGTON BLVD.

MYERS SELF-OILING BULLDOZER POWER PUMPS
Like all other Myers Products, Myers Self-Oiling Bulldozer Power Pumps stand the acid test from a sales and profit standpoint just as they do from a service standpoint. Fashioned and built on fifty years of pump building experience, their qualities in both design and construction as well as those of their many exclusive improvements assure lasting satisfaction. Twelve sizes for shallow service—five sizes for deep service—capacities up to ten thousand gallons per hour—twenty-four hour operation, day in and day out, without care or attention. Your inquiry is solicited.
THE F. E. MYERS & BRO. CO. Ashland, Ohio
ASHLAND PUMP AND HAY TOOL WORKS

ACCURACY-CONVENIENCE-RELIABILITY

These three ideals are paramount in the construction of Meriam Made Instruments. When your business is in need of Accurate, Convenient and Reliable information there is a Meriam Made Instrument to meet that need.
The Meriam Hydrometer Pot (illustrated), originated in a Testing Laboratory, under actual working conditions and is designed for quick, accurate work and convenience in handling.
Your own dealer can secure quickly from our stock.
THE MERIAM CO.
8405 Detroit Ave., Cleveland, Ohio

STEEL PLATE CONSTRUCTION
Steel oil storage tanks, Condensers, Stills, Refinery equipment of every kind, Fabricated and Erected
RITER-CONLEY COMPANY
General Offices—Pittsburgh, Penna.

Prosperity Ahead
The Petroleum Industry is on the upward swing. Better times are in store for those who know conditions in all parts of the country.
Renew your subscription to the "Journal" and you will be absolutely sure of receiving America's Greatest Petroleum Publication every week.
The Oil and Gas Journal
Box 2004, TULSA, OKLA.

Oklahoma-Kansas and Eastern Pipe Line Report

GROSS PRODUCTION IN THE UNITED STATES FOR 12 MONTHS

OKLAHOMA-KANSAS PIPE LINE STATEMENT FOR FEBRUARY

Runs

Company—	Month	Daily Average
Prairie P. L. Co.	3,108,000	111,000
Gulf P. L. Co.	1,085,624	38,772
Texas P. L. Co.	342,603	12,236
Magnolia Pet. Co.	907,015	32,393
Cosden P. L. Co.	802,229	28,651
Empire P. L. Co.	1,000,485	35,732
*Sinclair P. L. Co.	1,148,000	41,000
*Other lines	7,700,000	275,000
Total Feb.	16,093,956	574,784
Total Jan.	17,839,078	575,454
Difference	1,745,022	670

Shipments

†Prairie P. L. Co.	4,322,556	154,377
Gulf P. L. Co.	1,150,280	41,081
Texas P. L. Co.	680,924	24,319
Magnolia Pet. Co.	1,276,146	45,577
Cosden P. L. Co.	876,652	31,309
Empire Pipe Line Co.	909,619	32,486
†Sinclair P. L. Co.	2,248,987	80,321
*Other lines	7,840,000	280,000
Total Feb.	19,305,164	689,470
Total Jan.	20,946,691	675,699
Difference	1,640,547	13,771

Stocks

*Prairie Oil & Gas Co.	25,400,000
*Prairie Pipe Line Co.	2,000,000
Gulf Pipe Line and Gypsy Oil Co.	9,942,053
The Texas Co. and Texas P. L. Co.	4,706,419
Magnolia Petroleum Co.	8,702,580
Cosden Pipe Line Co.	2,360,698
Empire Pipe Line Co.	3,074,864
*Sinclair Crude Oil Purchasing Co.	27,400,000
Carter Oil Co.	16,951,857
*Other lines	10,000,000
Total February	110,538,471
Total January	112,728,264
Difference	2,189,793

*Estimated. †Prairie shipments include Texas crude oil and Sinclair shipments include Texas and Wyoming crude oil.

Note—Stocks do not include approximately 9,000,000 bbls. held in storage on private tank farms and leases.

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for January and February:

	Jan., '25	Feb., '25
Nat. Transit	158,224.95	152,089.01
S. W. Pa. P. L.	75,022.06	75,044.66
Eureka P. L.	236,785.07	323,694.15
Buckeye P. L. (Macksburg)	270,937.24	257,192.02
Buckeye P. L. (Cleveland)	11,783.31	11,467.59
Buckeye P. L. (Lima, etc.)	119,433.03	121,210.85
Indiana P. L.	9,562.51	10,117.61
Cumberland P. L.	316,512.22	290,358.12
N. Y. Transit	17,233.29	18,156.30
Tidewater P. L.	135,723.35	123,151.77
Pure Oil	184,170.99	169,180.29
Emery P. L.	43,635.37	41,770.44
Indian Ref.	50,678.03	57,797.15
Paragon Dev.	34,625.09	39,522.74
Pittsburgh P. L.	6,841.87	7,359.37
Riggs Ref.	.....	8,851.29
Total	1,761,768.28	1,696,963.36
Daily average	56,831.23	60,605.83

Note—Indian Refining Co. also reported other receipts of 375,260.75 bbls. Paragon Refining Co. had other receipts of 91,522.60 bbls. Paragon Development Co. had other receipts of 3,890.47 bbls. Pittsburgh Pipe Line had other receipts of 521.35 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for January and February:

	Jan., '25	Feb., '25
Nat. Transit	430,479.78	426,389.57
S. W. Pa. P. L.	352,482.72	333,592.35
Eureka P. L.	104,202.98	120,288.49
Buckeye P. L. (Macksburg)	108,833.21	95,657.49
Buckeye P. L. (Cleveland)	971.46	1,213.97
Buckeye P. L. (Lima, etc.)	737,449.65	754,903.48
Indian P. L.	1,184,796.12	1,068,926.14
Cumberland P. L.	151,651.28	142,109.90
N. Y. Transit	833,143.35	700,676.33
Northern P. L.	127,032.43	118,854.01
Tidewater P. L.	123,127.50	99,605.72
Pure Oil	184,953.81	124,856.42
Emery P. L.	42,468.57	38,829.91
Paragon Ref.	86,990.07	99,542.91
Indian Ref.	396,228.19	334,417.14
Paragon Dev.	19,862.92	27,650.36
Pittsburgh P. L.	9,893.25	7,261.61
Total	4,894,563.29	4,504,173.81
Daily average	157,889.13	160,863.35

Indian Refining Co. had other deliveries of 3,651.28 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil producing section of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of January and February were as follows:

	Jan., '25	Feb., '25
Nat. Transit	997,527.01	1,035,423.87
S. W. Pa. P. L.	671,822.11	686,629.94
Eureka P. L.	1,703,887.62	1,640,003.77
Buckeye P. L. (Macksburg)	327,725.42	269,748.41
Buckeye P. L. (Cleveland)	537,659.69	43,206.35
Buckeye P. L. (Lima)	3,556,916.92	3,491,690.20
Indiana P. L.	617,271.50	627,221.38
Cumberland P. L.	727,024.27	687,314.58
South P. L.	505,691.07	431,908.22
Crescent P. L.	58,217.64	58,244.28
N. Y. Transit	718,889.21	684,490.18
North P. L.	989,912.28	1,022,829.08
Pure Oil	407,274.06	454,163.71
Emery P. L.	8,880.37	11,400.75
Paragon Ref.	12,815.50	34,625.73
Indian Ref.	64,092.91	76,538.14
Paragon Dev.	13,161.62	8,591.88
Pittsburgh P. L.	4,506.45	5,210.04
Riggs Ref.	.....	3,683.39
Total	11,353,275.66	11,192,923.90
Decrease	230,403.86	160,351.76

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of January and February showing the gross stocks of the above fields:

	Jan., '25	Feb., '25
Penna	3,892,776.91	3,883,928.59
Lima	1,289,019.05	1,268,514.45
Kentucky	1,421,861.94	1,442,094.26
Mid-Cont.	4,711,600.48	4,563,791.51
Illinois	38,017.28	29,595.09
Total	11,353,275.66	11,192,923.90

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1922	1923	1924	1925
January	67,702	75,790	62,638	56,831
February	75,096	71,092	68,023	60,606
March	78,531	76,592	68,721	.....
April	75,462	75,614	71,058	.....
May	77,592	77,365	63,942	.....
June	76,193	77,593	63,230	.....
July	76,435	71,879	64,208	.....
August	79,387	76,910	59,942	.....
September	78,512	72,358	62,930	.....
October	77,209	76,256	64,976	.....
November	75,313	70,762	56,282	.....
December	73,351	69,271	55,814	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1922	1923	1924	1925
January	119,792	171,067	145,518	157,889
February	111,362	164,219	148,732	160,863
March	127,753	185,437	147,098	.....
April	127,068	170,751	147,611	.....
May	127,840	177,102	134,997	.....
June	137,638	173,598	143,010	.....
July	137,872	168,330	124,187	.....
August	153,275	142,766	123,120	.....
September	158,761	137,266	127,325	.....
October	165,345	134,597	123,170	.....
November	165,677	131,426	124,400	.....
December	172,861	139,909	151,392	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields including oil received from other lines, at the close of each month for the past three years:

	1923	1924	1925
January	14,040,567	12,907,202	11,353,276
February	14,028,437	11,844,006	11,192,924
March	13,873,146	10,906,752	.....
April	13,737,575	10,922,743	.....
May	13,815,622	11,335,309	.....
June	14,541,253	11,544,204	.....
July	14,645,584	12,062,361	.....
August	14,770,539	12,221,676	.....
September	14,803,444	12,206,856	.....
October	14,504,111	12,664,061	.....
November	14,157,726	12,368,530	.....
December	13,444,361	11,583,680	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1924—	Receipts	Shipments	Stocks
February	2,151.78	1,926.55	10,071.91
March	3,398.78	1,716.28	11,756.41
April	3,311.84	2,066.78	13,001.47
May	3,036.50	5,338.21	10,699.76
June	3,188.81	407.01	13,481.56
July	3,067.74	3,334.29	13,214.51
August	2,901.36	6.21	16,109.71
September	2,794.55	5,775.89	13,128.43
October	3,343.90	1,880.50	14,591.91
November	2,700.13	482.89	13,427.54
December	3,120.34	2,659.13	13,888.77
1925—			
January	1,730.86	1,681.15	13,938.48
February	2,702.05	4,564.70	11,975.83

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, March 1	2,369,152.97
Runs from wells	610,582.98
Other receipts	171,553.74
Regular deliveries	438,635.88
Other deliveries	306,581.20

The amount of Illinois oil run by the Tide Water Pipe Line Co. in February was 26,052.40 bbls. and deliveries were 26,035.01. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries from the Illinois Field as follows:

1924—	Runs.	Deliveries
February	535,490.70	353,613.14
March	611,289.36	369,542.51
April	514,356.43	339,566.19
May	751,080.44	510,414.42
June	725,060.37	528,403.34
July	759,646.84	562,286.56
August	720,457.72	518,335.79
September	714,875.36	535,763.80
October	741,767.42	543,863.77
November	650,147.63	521,453.51
December	640,919.23	595,943.39
1925—		
January	695,513.43	572,304.77
February	636,635.20	514,661.53

The Tide Water Pipe Co., Ltd., also delivered in February 236,246.74 bbls. of Oklahoma oil. The total deliveries of all grades by the Tidewater were 421,878.13 bbls.

AVERAGE WEEKLY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Average bbls. per week—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
October	85,379	49,000	391,069	85,602	26,127	784,056	.....	.....	.....	.....	.....	784,056
November	119,469	52,031	527,948	38,031	37,321	637,931	.....	.....	.....	.....	.....	637,931
December	57,127	16,709	386,806	81,067	18,291	561,540	.....	21,000	.....	.....	21,000	582,540
January	86,933	16,030	310,933	75,418	58,709	548,023	.....	.....	.....	.....	.....	548,023

AVERAGE WEEKLY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per week—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
October	136,826	67,515	257,413	90,318	113,127	665,704	231,903	268,816	111,097	29,351	640,967	1,306,671
November	198,569	87,500	477,631	166,410	258,531	1,187,641	383,331	380,569	94,269	19,831	878,500	2,066,141
December	165,515	25,515	269,164	82,418	246,583	789,194	320,368	358,906	76,531	51,499	707,014	1,496,208
January	129,843	113,582	440,776	60,739	191,709	936,649	205,051	398,097	100,321	28,231	731,710	1,668,359

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountain	Eastern Fields	Total
March:	Month	19,913,262	13,336,851	13,044,503	2,206,426	3,882,695	1,701,593	2,827,204	3,350,600	61,163,134
	Daily average	642,363	430,231	388,532	71,175	125,247	54,890	123,460	104,856	1,973,094
April	Month	19,399,849	13,452,240	11,577,246	2,268,540	4,068,225	1,495,532	2,736,332	3,273,600	58,173,614
	Daily average	643,328	448,408	385,908	75,618	135,608	49,858	124,611	109,120	1,939,133
May	Month	19,833,576	14,247,697	11,633,395	2,469,765	4,659,117	1,596,701	3,866,010	3,264,000	61,560,261
	Daily average	639,793	459,603	374,948	79,347	150,288	51,507	124,710	105,042	1,985,495
June:	Month	18,807,999	14,447,390	11,602,350	2,469,380	4,756,443	1,813,580	3,038,624	3,253,600	60,783,366
	Daily average	626,933	481,580	386,745	82,313	158,548	60,429	121,288	108,453	2,026,379
July:	Month	19,274,755	15,191,860	11,917,137	2,671,053	4,597,969	1,815,966	3,768,398	3,371,600	62,607,736
	Daily average	621,766	490,060	384,424	86,195	148,322	58,580	121,561	108,761	2,019,637
August:	Month	19,112,998	16,525,356	11,808,876	2,717,398	4,359,241	1,702,525	3,749,376	3,286,000	63,261,769
	Daily average	616,548	533,076	380,931	87,658	140,621	54,920	120,948	106,000	2,040,702
September:	Month	18,308,233	16,299,030	11,089,492	2,638,900	4,029,535	1,796,575	3,330,007	3,150,000	60,640,772
	Daily average	610,274	543,301	369,650	87,963	134,318	59,853	111,000	101,938	2,021,359
October:	Month	18,696,559	16,189,898	10,942,005	2,768,455	3,983,696	1,774,707	3,058,265	3,295,000	60,606,588
	Daily average	603,115	522,255	353,000	89,305	128,506	57,249	98,654	106,516	1,961,607
November:	Month	17,767,034	15,955,620	10,731,264	2,597,460	3,461,050	1,965,921	2,753,110	2,941,000	58,207,459
	Daily average	592,234	531,854	357,709	86,582	115,035	65,531	92,937	98,033	1,940,248
December:	Month	18,795,126	16,091,135	11,264,915	2,537,443	3,380,511	1,870,876	2,902,885	3,000,850	59,153,744
	Daily average	606,294	517,135	363,384	81,853	109,049	60,351	74,287	96,402	1,908,156
January:	Month	18,743,288	15,462,800	13,790,196	2,520,858	3,278,484	1,774,972	2,637,676	3,066,993	61,263,266
	Daily average	604,622	498,800	444,845	81,315	105,758	57,228	84,760	98,903	1,976,233
February:	Month	16,869,833	13,906,780	11,361,896	2,466,660	2,886,296	1,547,416	2,666,335	2,905,000	54,609,216
	Daily average	602,494	496,635	405,782	88,095	103,082	55,265	95,226	103,750	1,950,329
	Total 12 months	225,422,512	181,045,707	139,753,274	30,323,328	47,343,262	20,853,514	39,361,237	38,157,243	772,260,087
	Daily average	617,596	496,016	382,886	82,804	129,708	57,133	107,820	104,540	

The ADVERTISERS' INDEX

A

Acme Fishing Tool Co.
Acme Petroleum Co.
Adler, Joseph L. 134
Ajax Iron Works
Ajax Rope Co., Inc.
Alexander, Clive M. 132
American Appraisal Co. 107
American Cable Co.
American Car & Foundry Co.
American Cast Iron Pipe Co.
American Radiator Co.
American Schaeffer Budenburg Corp.
American Sheet & Tin Plate Co.
American Telephone and Telegraph Co.
Ames Shovel & Tool Co.
Amdyco Corporation
Anderson, Carl B. 134
Anderson & Anderson 135
Andrews Steel Co. 121
Arbon, Paul & Co.
Armstrong Bros. Tool Co. 128
Athey Truss Wheel Co. 11
Atlas Ball Co.
Austin Co.
Axelson Machine Co. Back Cover

B

Baash-Ross Tool Co.
Baker Casing Shoe Co. 131
Barber-Greene Co. 7
Barnes Manufacturing Co.
Barnickel, Wm. S. & Co. 67
Barnsdall Refining Co.
Bartlesville Supply Co. 125
Bessemer Gas Engine Co. 33
Bignall & Keeler Machine Works 121
Biggs Boiler Works Co.
Black, Sivalls & Bryson, Inc. 10
Blaw-Knox Co.
Borden Co.
Botfield Refractories Co.
Bovaird & Seyfang Mfg. Co.
Bovaird Supply Co., The 57
Braden Co., The
Bradford Motor Works
Bradford Rig & Reel Co. 51
Braun, C. F. & Co.
Bridgeport Machine Co.
Bristol Co. 96
Broderick & Bascom Rope Co.
Brokaw, Dixon, Garner & McKee 135
Brown Instrument Co.
Brown & Thomsen 134
Bruce-Macbeth Engine Co.
Buckeye Traction Ditcher Co.
Burns Tool Co.
Buff & Buff Manufacturing Co. 135
Burt Manufacturing Co. 96
Busch-Sulzer Bros. Diesel Engine Co.
Butler Manufacturing Co. 79

C

Capital Abstract & Realty Co. 131
Carbondale Machine Co.
Carnegie Steel Co. 102
Caudill, Samuel J. 134
Celite Products Co.
Central Steel Co.
Chain Belt Co.
Champion Machine & Forging Co. 88
Chaplin-Fulton Manufacturing Co. 128
Chapman Valve Manufacturing Co.
Chestnut & Smith Corp. 35
Chicago Bridge & Iron Works
Chicago Pneumatic Tool Co. 73
Clapp, Frederick G. 134
Clark Brothers Co.
Clark Machine Co. 104
Clark, Robert W. 134
Classified Wants 98-99-100
Climax Engineering Co.
Columbian Rope Co.
Columbian Steel Tank Co. 15
Columbus Sucker Rod Co. 84
Continental Motors Corp.
Continental Supply Co. 53
Cooper, C. & G. Co.
Cox & Sons Co. The 102
Crane Co. 16
Cunningham Co. 126
Cyclone Fence Co.

D

D. & B. Pump & Supply Co.
Darling Valve & Manufacturing Co. 77
Dart, E. M. Manufacturing Co.
Davis Regulator Co.
Dawson Towel Supply Co. 131
Dayton Pipe Coupling Co.
Dearborn Chemical Co.
De La Vergne Machine Co.
Delta Electric Co. 59
Diamond Drill Carbon Co. 135
Dickey-Ashby Fountain Co. 131
Diamond Drilling & Exploration Co. 131
Dixon, Joseph, Crucible Co. 134
Donovan Boiler Works Inc.
Dorn R. J. Co., Inc.
Dresser, S. R. Manufacturing Co. 29
Dunn Manufacturing Co. 103

E

Eagle Picher Lead Co. 3
Eastern Torpedo Co. 130
Edward Valve & Manufacturing Co.
Empire Refineries, Inc.
Equitable Meter Co.

F

Fairbanks-Morse & Co.
Federal Supply Co.
Fenwick-Reddaway Mfg. Co.
Fisher Governor Co. 92-135
Fleming, Martin Undertaking Co. 132
Flexible Steel Lacing Co. 130
Foamite-Childs Corp.
Foggan, Geo. N.
Fohs, F. Julius 133
Foos Gas Engine Co.
Fort Worth Laboratories 132
Foster & Reiter 133
Foxboro Co., Inc., The
Franklin Valveless Engine Co.
Frick-Reid Supply Co. 37
Fulton Iron Works

G

Gantz Tank Co.
Gardner Governor Co. 87
Garlock Packing Co.
Garrett, M. M. 132
Gaso Pump & Burner Manufacturing Co. Inside Back Cover
General American Tank Car Corp.
General Motors Truck Co. 39
Gomory, W. L. 133
Goodrich, B. F. Rubber Co., Inc.
Goodrich, H. B. 135
Goodyear Tire & Rubber Co.
Gould Burner Co.
Goulds Manufacturing Co.
Gott, H. P. Manufacturing Co. 132
Graver Corp. 13
Greene, Frank C. 133
Griscom-Russell Co.
Guiberson Corp. 41
Gurley, W. & L. E. 130

H

Halliburton, Erle P. 14
Harrisburg Pipe & Pipe Bending Co. 81
Havana Manufacturing Co. 134
Hazard Manufacturing Co.
Henry, George W. 131
Heppenstall, Forge & Knife Co. 65
Herald Brothers 135
Hercules Motor Corp. 94
Heydrick Mapping Co. 132
Hills-McCanna Co.
Hinderliter Tool Co. 101
Homestead Valve Co.
Hood, H. H. 135
Hoffman Mfg. Co.
Hope Engineering & Supply Co. 70
Hopkins, Edwin B. 133
Hough, Charles N. Mfg. Co. 47
Hughes Tool Co. 63
Hunt, Robert W. Co. 135
Huntley & Huntley 134

I

Illinois Glass Co.
Imperial Belting Co. 120
Imperial Brass Mfg. Co.
Ingersoll-Rand Co.
International Derrick & Equipment Co. Inside Front Cover
International Harvester Co. of America 89
Iron King Manufacturing Co. 125

J

Jarecki Manufacturing Co.
Johns-Manville, Inc.
Jones, S. M. Co. 91

K

Kansas City Bolt & Nut Co.
Kansas City Hay Press Co. 122
Kaw Boiler Works Co.
Kellogg, M. W. Co. 129
Kelly & Jones Co. 135
Kelly-Springfield Tire Co.
Kennedy Valve Manufacturing Co.
Kerr, John B. 133
Kenawee Boiler Co.
Kinney Manufacturing Co.
Kirk, Charles T. 134

L

Lafe Speer Abstract Co. 131
Landis Machine Co.
Larkin & Co. 129
Layne & Bowler Co.
Leidecker Tool Co. 71
Lewis, James O. 135
Linde Air Products Co. 1
Link-Belt Co.
Longhart Supply Co.
Longyear, E. J. Co. 122-133
Lucey Manufacturing Corp.
Ludlow Valve Manufacturing Co.
Lufkin Foundry & Machine Co.
Lufkin Rule Co.
Lunkenheimer Co.

M

Magnolia Petroleum Co. 12
Maloney Tank Manufacturing Co. 78
Manzel Brothers Co.
Marsh Gauge Pole Co. 133
Matson, George C. 135
Matteson, W. G. 132
Messimer, H. H. 134
Metric Metal Works
Miller Improved Gas Engine Co.
Miller, Max B. & Co., Inc.
Monarch Cement Co.
Moore, Lee C. & Co., Inc. Front Cover
Munn & Co. 132
Myers, F. E., Bro. & Co. 132

Mc

McCord Radiator Manufacturing Co.
McGregor Working Barrel Co.
McIntosh & Seymour Corp.
McNutt, V. H. 133

N

National Carbon Co., Inc. 1
National Lead Co.
National Supply Co. 31
National Transit Pump & Machine Co. 74
National Turnbuckle Derrick Co. 72
National Tube Co.
Newton Process Co. 23
Norris Brothers 124
North American Car Co.
Northern Oil Information Bureau 132
Northrup Equipment Co.
Novo Engine Co.
Nugent Steel Casting Co. 135
Nuttall, R. D. Co. 93
Nye Tool & Machine Works 124

O

O'Brien Steel Construction Co. 124
Ohio Steel Foundry Co.
Oil Conservation Engineering Co.
Oil Well Improvements Co. 48-49
Oil Well Supply Co. 68-69
Okmulgee Boiler & Welding Works
Oster Manufacturing Co. 82
Oxweld Acetylene Co. 1

P

Page Fence & Wire Products Association
Parkersburg Machine Co.
Parkersburg Rig & Reel Co.
Patrick, R. S. 126
Pattin Brothers Co.
Pennzoil Co., The
Petroleum Iron Works 95
Pforzheimer, Carl H. & Co.
Pioneer Tank & Boiler Co.
Pittsburgh-Des Moines Steel Co.
Pittsburgh Meter Co. 126
Pittsburgh Reinforced Brazing & Machine Co.
Plibrico Jointless Firebrick Co. 120
Powell, William Co.
Power Manufacturing Co.
Power Piping Co.
Power Specialty Co.
Prescott Co., The
Prest-O-Lite Co., Inc. 1
Producers & Refiners Corp. 83
Pure Oil Co. 27
Pyle-National Co. 45

R

Reading Iron Co. 97
Reading Steel Casting Co., Inc. 133
Reed Roller Bit Co. 54-55
Regan Forge & Engineering Co. 8
Reid, Joseph, Gas Engine Co. 123
Republic Iron & Steel Co. 76
Republic Supply Co.
Rich, John L. 134
Ring, DeWitt T. 133
Riter-Conley Co. 135
Robinson, Heath M. 135
Rock Island Plow Co.
Roots, P. H. & F. M. Co.
Ross-Meehan Foundries
Ryerson, Joseph T. & Son 134

S

Schley, Jack A. 132
Sherwin-Williams Co.
Shippers' Car Line Co.
Sinclair Refining Co. 115
Sivyer Steel Casting Co.
Slater Bros. Turnbuckle Derrick Co.
Smith, George H. Steel Casting Co.
Smith-Separator Co. 123
South Chester Tube Co. 2
Southern Cornice Works
Spang & Co.
Spellman, John M. 135
Spence Machine Co. 134
Spengler Core-Drilling Co. 94
St. Louis Steel Casting Co. 132
Stalder, Walter 133
Standard Engineering Co.
Standard Torpedo Co. 133
Stanley Belting Corp. 128
Star Drilling Machine Co. 5
Sterling Steel Co.
Stewart, Irvine E. 135
Sullivan Machinery Co.
Superior Tube Co. 9
Swartwout Co., The

T

Tagliabue, C. J. Mfg. Co. 6
Taylor Instrument Co. 90
Taylor-Wharton Iron & Steel Co.
Templeton, Kenly & Co., Ltd.
Texas Co., The
Texas Gulf Sulphur Co. 128
Titusville Forge Co. 75
Titusville Iron Works
Toledo Pipe Threading Machine Co. 130
Trimont Manufacturing Co.
Trumble Gas Trap Co. 80
Truscon Steel Co.
Tulsa Boiler & Machinery Co. 131
Tulsa Ice Co. 131

U

United Iron Works
United States Cast Iron Pipe & Foundry Co.
U. S. Tool Co.
Universal Oil Products Co. 61

V

Vogt Brothers Manufacturing Co. 133
Vogt, Henry Machine Co.

W

Walker, A. H. & Co. 85
Wall Rope Works, Inc.
Walworth Manufacturing Co.
Washburne, C. W. 133
Waukesha Motor Co. 43
Wertzberger Derrick Co.
Westcott & Greis
Westcott Valve Co.
Western Bank Supply Co. 131
Western Machinery Co.
Westinghouse Electric & Manufacturing Co.
White Co.
Wickwire Spencer Steel Co., Inc.
Wico Electric Co.
Williams, J. H. & Co. 132
Wilson Oil Tools Corp. 4
Wilson Welder & Metals Co.
Wirth, Alfred & Co.
Wood & Wood 131
Worthington Pump & Machinery Corp.
Wright, Harry F. 133
Wright Manufacturing Co.

Y

Yale & Towne Manufacturing Co.

Z

Zero Hour Torpedo Co. 86